EXPLANATION OF SIGNIFICANT DIFFERENCES #3 FOR

THE MIDCO II SUPERFUND SITE

GARY, INDIANA

September 2004

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I. INTRODUCTION AND STATEMENT OF PURPOSE

The United States Environmental Protection Agency (EPA) recently completed a report that included a summary of the history, and review of the progress of the remedial actions at Midco II in the *Second Five-Year Review Report for Midco II* dated May 2004. For that reason, this Explanation of Significant Differences (ESD#3) only includes a brief outline of the history and progress of the remedial actions. The *Second Five-Year Review Report for Midco II* is available in the administrative record.

The primary Midco II source area occupies approximately seven acres located at 5900 Industrial Highway, Gary, Indiana (see attached Figure 1, Site Location Map, from *Midco Conceptual Work Plan*, ENVIRON International Corp. (Environ) and Environmental Resources Management, Inc. (ERM), October 2002). Midco II is bordered by a former auto salvage yard on the northwest, a ditch and CSX railroad right-of-way on the northeast, vacant filled-in land now owned by the Gary-Chicago Airport Authority on the southeast, and Industrial Highway on the southwest (see attached Figure 7, Extended Fence, from *Sediment Excavation Report Midco I and Midco II*, ERM, December 17, 1993). Midco II is 1.14 miles south of Lake Michigan, and 0.85 miles north of the Grand Calumet River and the Little Calumet River. The only aquifer of concern at Midco II is the Calumet aquifer, whose water table is generally only about eight feet below ground surface. The Calumet aquifer is approximately 45 feet thick at Midco II and is underlain by about 62 feet of soft silty clay and silty clay loam, and six feet of hard silty till.

The Selected Remedy includes the following:

- access and deed restrictions;
- excavation of contaminated sediment and soil from the ditch along the northeastern border of Midco II to a depth necessary to achieve the Sediment/Soil Cleanup Action Levels (CALs) and consolidation of the excavated soil onto the source area;
- groundwater pump-and-treat and disposal via deep well injection in order to cleanup groundwater to Groundwater CALs;
- treatment of excavated soil and sediment by solidification / stabilization (S/S);
- treatment of soil within defined minimum areas for treatment (MATs) by vapor extraction (SVE) and in-situ S/S;
- treatment of source area soil outside of the MATs that exceed the soil treatment action levels (STALs) by SVE and/or in-situ S/S; and
- a site cover over the area shown in Figure 2 from the 1992 ROD Amendment.

The remedial actions are being implemented under a Consent Decree by a group of Settling Defendants, who have formed the Midco Remedial Corporation (MRC) to implement the Selected Remedy. EPA is overseeing implementation of the Selected Remedy with support from the Indiana Department of Environmental Management (IDEM).

ESD #3 revises the Selected Remedy for the Midco II Site. The Selected Remedy for Midco II is defined in a Record of Decision (ROD) dated June 30, 1989, as amended by a ROD Amendment on April 13, 1992, and revised by ESDs on January 9, 1996 and on November 2, 1999. The purpose of the previous ESDs (ESD#1 and ESD#2) were primarily to revise the maximum allowable concentrations prior to deep well injection. ESD#3 is being issued, pursuant to Section 117 of the Comprehensive Environmental Response, Compensation and Liability Act, and Section 40 CFR 300.435(c)(2)(I) of the National Contingency Plan, by EPA following consultation with the IDEM. ESD#3 presents to the public an explanation of significant differences in the Selected Remedy. More specifically, ESD#3 modifies requirements for treatment of the principal threats at the site (sediments and source area soils), including:

- accelerate VOC removal from source area groundwater and provide more complete VOC removal in source area soils at and near the groundwater table by performing air sparging in groundwater in conjunction with the SVE operation;
- eliminating the requirement to treat SVOCs in source area soils by in-situ S/S, and instead consider treatment of SVOCs that occurs in conjunction with the SVE and air sparging treatment to be sufficient;
- changing soil remediation requirements for source area soil contaminated with metals and cyanide;
- eliminating the requirement to treat sediments and soils excavated from the sediment excavation areas using in-situ S/S;
- changing the point of application of an air emission control requirement.

A fundamental change to the Selected Remedy, which would require a ROD Amendment, is not being proposed. ESD#3, and documents considered or relied upon for preparation of ESD#3, will become part of the administrative record for the Midco II site.

II. SITE HISTORY AND SELECTED REMEDIAL ACTIONS

A. Site History

Waste operations at Midco II were initiated during the summer of 1976. In January 1977 (following a major fire at Midco I), Midwest Industrial Waste Disposal Company was incorporated ostensibly to operate Midco II, and the Midco I operations were transferred to Midco II. Operations included temporary bulk liquid and drum storage of waste and reclaimable materials, neutralization of acids and caustics, and on-site disposal of liquids via dumping into pits, which allowed seepage of liquids into groundwater and into the ditch. One of these pits, called the "filter bed", had an overflow pipe leading into the ditch.

By April 1977, it was estimated that 12,000 to 15,000 55-gallon drums of waste materials were stored on-site. In addition, there were 10 above and below ground storage tanks used to store liquid wastes. The drums were stacked three high, and along with the tanks were badly deteriorated and leaking. The wastes stored on the site included oils, oil sludges, chlorinated solvents, paint solvents, paint sludges, acids, and spent cyanide solutions. Also present were highly contaminated soils, an open dump containing drums, tires, and wood wastes; and an excavated pit containing unidentified sludges. On August 15, 1977, a major fire at Midco II destroyed equipment, buildings, and damaged or burned out an estimated 50,000 to 60,000 drums.

In August 1981, EPA installed a 10-foot high fence around Midco II. In two separate removal actions in 1984 and 1985, EPA removed all of the drums, tanks, and surface wastes. Also in 1985, EPA excavated contaminated soil and material from the sludge pit and filter bed, which were highly contaminated by PCBs and cyanide. The sludge pit and filter bed contents were temporarily contained on Midco II. The sludge pit and filter bed contents were removed from Midco II and disposed off-site, in a number of removal actions conducted between 1985 and 1989.

Midco II was placed on the National Priorities List in October 1984. Shortly after EPA initiated the Remedial Investigation/Feasibility Study (RI/FS), EPA reached a settlement with a group of potential generators to conduct the RI/FS and reimburse EPA costs. The group of generators conducted the RI/FS from 1985 through 1989.

The RI demonstrated that the source area soils, and the groundwater near the site were highly contaminated. For residential usage of groundwater, the lifetime, cumulative carcinogenic risk (CR) was estimated to be 2.6×10^{-2} and the cumulative non-carcinogenic risk index (NCRI) was estimated to be 124. Many groundwater contaminants exceeded the Safe Drinking Water Act Maximum Contaminant Levels (MCLs). For residential soil exposures, the lifetime, cumulative carcinogenic risk was estimated to be 3.3×10^{-4} and the cumulative non-carcinogenic risk index was 2.99.[1] There were also significant risks to off-site property owners, and to biota in the vicinity of the site.

Contaminants of concern included many volatile organic compounds (VOCs), many semivolatile organic compounds (SVOCs), many metals, arsenic, cyanide, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), and a few pesticides. An unanticipated result was that the aquifer in the vicinity of Midco II is highly saline, mostly from sodium and potassium chlorides. Chloride is as high as 60,000 mg/l below the site. It has been theorized that most of the high salinity was caused by fill containing secondary aluminum smelting waste although it appears that

[1] In 1991, it was determined that much of the data for arsenic in soil from the RI was unusable. If the RI risk assessment procedures are used but the unusable arsenic data is disregarded, then the risks from residential soil exposure is CR = 5.7×10^{-5} and NCRI = 1.7. The RI did not include dermal contact or inhalation exposure via indoor air to an on-site resident. When those routes of exposure were assessed, the estimated risks to residents was very high even without considering arsenic. See Section III of the 1992 ROD Amendment.

disposal in the filter bed also contributed to the salinity.

B. 1989 ROD

In June 1989, EPA issued the initial Record of Decision (ROD), which provides for the following remedy components:

- Access and deed restrictions;
- Excavation and on-site S/S of an estimated 500 cubic yards of contaminated sediments from the ditch along the northeastern boundary of Midco II;
- Treatment of an estimated 35,000 cubic yards of source area contaminated soil by SVE followed by S/S;
- Installation and operation of a groundwater pumping system to intercept groundwater from Midco II;
- Installation and operation of a deep, class I, underground injection well for disposal of contaminated groundwater if a no-migration petition is approved; if a no-migration petition is disapproved, installation and operation of a treatment system to remove hazardous substances from the groundwater followed by deep well injection of the salt contaminated groundwater; or installation and operation of a treatment system to remove hazardous substances from the groundwater followed by reinjection of the salt-contaminated groundwater into the Calumet aquifer in a manner that will not spread the salt plume; and
- Installation of a conduit in the ditch along the northeastern border of Midco II, and installation of a final site cover satisfying RCRA closure requirements (the quality also depended on the results of tests on the S/S treated material).

Contaminated sediments in the ditch along the northeastern boundary of Midco II that exceeded the following Soil/Sediment Cleanup Action levels (CALs) were to be excavated and treated by S/S:

- Cumulative Lifetime Carcinogenic Risk (CR) = 1×10^{-5};
- Cumulative Chronic Non-carcinogenic Risk Index (NCRI) = 1.0;
- Subchronic Risk Index = 1.0.

The 1989 ROD included procedures for calculating the Soil CALs and referenced the appropriate toxicity factors to be used. The risk-based concentrations assumed residential exposure to surface soil via dermal contact and ingestion. Although no ecological risk-based concentration was included, it was assumed that the Sediment/Soil CALs would also be protective of aquatic life and wildlife.

The 1989 ROD provided for treatment of all source area subsurface soil above the water table that exceeded the Soil CALs. Direct treatment of soil below the water table was limited to highly contaminated soil or materials that could be handled by local dewatering. Alternatives that included direct treatment or removal of contaminated soils below the water table were screened out prior to the detailed evaluation of alternatives because of their additional costs, and because it appeared to be impractical to handle the large volume of contaminated water that would have to be removed to dewater the site. It was believed that the groundwater treatment would gradually remove the soil contamination below the water table through the natural flushing of groundwater.

For cost estimation purposes, it was estimated that 35,000 cubic yards of source area soil would have to be treated. Protection of groundwater from the soil to groundwater migration route was not considered in establishing the Sediment/Soil CALs because leaching tests were not run on soil samples during the RI. However, it was apparent that requiring treatment of soil exceeding the Soil CALs would include most if not all of the source area, and performance standards for treatment also addressed contaminant leaching. Therefore, it was believed that the treatment of soil exceeding the Soil CALs would also address the soil to groundwater contaminant pathway.

The 1989 ROD provides that SVE could be performed either as a separate operation using standard methods, or through withdrawal of vapors prior to and during mixing the soil using equipment for in-situ S/S. The FS only evaluated the feasibility of SVE as a separate operation, but EPA included the option of conducting SVE using the in-situ S/S mixing equipment so that this method could be used if demonstrated to be effective. The performance standards for SVE included:

- reducing VOCs enough to allow the S/S operation (whether conducted in-situ or ex-situ) to be conducted in compliance with air emission requirements, including limiting the incremental, lifetime carcinogenic risks to the nearest residents and workers on adjacent properties to 1 X 10^{-7};
- if S/S was conducted ex-situ, reducing VOCs enough to achieve RCRA Land Disposal Restrictions treatment standards (LDRs) for waste numbers F001, F002, F003, F005, F007, F008 and F009 for VOCs in 40 CFR § 268;
- if S/S was conducted in-situ, reducing VOCs enough to protect groundwater from exceeding the Groundwater CALs as a result of leaching from the soils.

If SVE treatment was conducted as a separate operation, the soil risks from VOCs would be reduced, but significant risks from other contaminants would remain. S/S treatment was included in the Selected Remedy to address the risks from these other contaminants, including metals, SVOCs, pesticides and PCBs. If ex-situ S/S was conducted, SVE had to be completed first as a separate operation. The performance standards for ex-situ S/S were to reduce the mobility of metals and other contaminants by 90 – 95 % (see page 20 and Table 21 of the 1989 ROD), in accordance with requirements for a treatability variance from the RCRA LDRs. If in-situ S/S was conducted, SVE could be conducted using the S/S equipment if it could be demonstrated to be effective. In this case the LDRs would not be applicable or relevant and appropriate requirements, and, the performance standards were to reduce the mobility of contaminants so that leachate from the treated soil would not cause exceedance of the Groundwater CALs. The 1989 ROD recognized that a treatability study for the S/S treatment was necessary.

The 1989 ROD requires the pump and treat system to recover and treat all groundwater from portions of the Calumet aquifer affected by the site or by Midco II that exceed the Groundwater CALs, and to continue operating until the Groundwater CALs are achieved. The Groundwater CALs are as follows:

- CR = 1×10^{-6};
- NCRI = 1.0;
- Subchronic Risk Index = 1.0;
- Primary MCLs;
- Chronic Ambient Water Quality Criteria (AWQC) times 3.6.

The treatment requirements prior to deep well injection depended upon whether or not a no-migration petition (pursuant to 40 CFR § 148, Subpart C) would be approved by EPA. If EPA approved a no migration petition, no treatment would be required. Otherwise, treatment in accordance with LDRs would be required. The 1989 ROD also identified action specific ARARs for the deep well injection in 40 CFR § 144 and § 146.

C. 1992 ROD Amendment

The 1992 ROD Amendment, amended the Selected Remedy primarily to reduce soil treatment to only the most highly contaminated soils that were considered to constitute the principal threats. The 1992 ROD Amendment also included the following changes: eliminating the option of deep well injection without treatment; eliminating the option of ex-situ S/S; changing and better defining performance standards for SVE and S/S; adding new air emission control requirements and limitations; providing more specificity regarding requirements for deep well injection, sediment excavation and handling, procedures for calculation of Sediment/Soil and Groundwater CALs, construction requirements for the site cover, procedures for off-site disposal, and methods for protection of wetlands; identifying a sequence for the remediation work; requiring construction of the site cover over the entire source area; and language identifying contingencies in case it is technically impractical to achieve the Groundwater CALs.

Following is a more detailed description of the provisions of the 1992 ROD related to soil treatment, which is the subject of ESD#3. The 1992 ROD Amendment requires treatment of the soils that are considered to be the principal threats. The soils presenting the principal threats were defined as follows:

- Approximately 12,200 cubic yards within defined minimum areas for treatment (MATs), which included treatment within the areas and to the depths shown on the attached Figure 2 from the 1992 ROD Amendment. These were areas that appeared to exceed the STALs described below based on RI data.
- Soils outside of the MATs that exceed one of the following STALs:
  - CR = 5×10^{-4}
  - NCRI = 5.0
  - lead concentration (mg/kg) = 1,000

To identify soils exceeding the STALs, the ROD Amendment provided for establishing a uniform 60 foot square grid over the entire Midco II source area excluding the MATs. Soil samples were to be collected at 1 – 3 and 4 – 6 foot depth intervals in the center of each grid. Each soil sample was to be analyzed for a list of hazardous substances of concern at Midco II, which included 13 metals, arsenic, cyanide, 15 VOCs, 11 SVOCs, 3 pesticides, and PCBs. If a grid sample exceeded a STAL, then that grid could be further subdivided into 20 foot grids, and samples collected in the same manner from the centers of the 20 foot grids. The analytical results for each sample were to be input into risk-based computations defined in the ROD Amendment in order to compare to the STALs. The risk-based computations utilized residential type exposure assumptions for ingestion, dermal, and inhalation exposures. Protection of groundwater from the soil to groundwater migration route was not considered because no soil leaching data was available. The risk-based calculations were to utilize toxicity factors and oral absorption factors that were identified in the ROD Amendment and were current at that time.

Soils within the MATs and within grids whose soil samples exceeded a STAL were to be treated first by SVE followed by S/S, unless removing VOCs from a grid exceeding a STAL would result in that grid's sample complying with the STALs, in which case only SVE treatment would be required.

The 1992 ROD Amendment did not change the provision that SVE could be conducted either as a separate operation or by injection of air prior to adding reagents for S/S using the same mixing and air pollution control equipment as used for S/S. However, the effectiveness of the SVE soil treatment and air emission controls using the S/S equipment had to be demonstrated in treatability and pilot studies.

The performance standards for SVE using S/S equipment included:

- demonstration that a 90% reduction in a list of VOCs of concern in soils was achievable based on treatability and pilot tests; and
- a 97% reduction in VOCs in the off-gas during implementation.

The performance standard for SVE as a separate operation included:

- reductions in VOCs to enable in-situ S/S to be conducted in compliance with air emission limitations; and
- reduction of total VOCs in soil by 97% in the soils being treated.

The 1992 ROD Amendment specified the following specific minimum performance standards (MPSs) and associated tests for the S/S:

- for stabilization of metals and arsenic either: 1. reductions in mobility varying from 90% – 99% based on before and after treatment Synthetic Precipitation Leaching Procedure tests, EPA Method 1312 (SPLP); or 2. after treatment SPLP results less than concentration limits (the concentration limits for arsenic, barium, cadmium, chromium, lead and nickel were the MCLs, and for copper was the 4-day average fresh water ambient water quality criteria for protection of aquatic life times a factor of 3.6);
- for stabilization of organic compounds, 50% reductions in anthracene, bis(2-ethylhexyl)phthalate, ethyl benzene, fluoranthene, naphthalene, phenanthrene, phenol, toluene, and total xylenes based on before and after treatment analyses of methylene chloride extractions;

- for hydraulic conductivity, less than 1 X 10^{-7} cm/sec in treated soil using test method EPA9100.
- for physical strength, greater than 50 pounds per square inch unconfined compressive strength using ASTM D1633-84.
- for durability, less than 10% weight loss for wet-dry durability using ASTMD4843, and less than 10% wet loss for freeze-thaw durability using ASTMD4842.

A comparison of the Selected Remedy in the 1989 ROD and after the 1992 ROD Amendment is summarized in the following table.

TABLE 1
COMPARISON OF SELECTED REMEDY IN THE 1989 ROD AND AFTER THE 1992 ROD AMENDMENT FOR MIDCO II

AREA OF COMPARISON	1989 ROD	AFTER 1992 ROD AMENDMENT
Technology to cleanup groundwater	pump-and-treat	No change
Technology to cleanup soil below water table	pump-and-treat except S/S in areas that can be treated using localized dewatering	No change
Groundwater CALs	CR = 1 X 10^{-5} NCRI = 1.0 MCLs AWQC X 3.6	No change
Technology for groundwater disposal	Deep well injection (or reinjection into the Calumet aquifer)	No change
Groundwater treatment requirements prior to deep well injection	RCRA Land Disposal Restrictions (LDRs)	RCRA delisting criteria (6.3 times health based levels)
Technologies to treat principal threats in soils above water table and accessible by localized dewatering	in-situ SVE and in-situ or ex-situ S/S	SVE and in-situ S/S
Technology to address soil presenting a lower long-term health threat	SVE and S/S, and site cover	Site cover
STALs	CR = 1 X 10^{-5} NCRI = 1.0	CR = 5 X 10^{-4} NCRI = 5.0 Lead = 1,000 mg/kg plus treat soils within MATs

Performance standard for SVE	Protect groundwater and comply with air emission requirements	97% reduction
Performance standards for in-situ S/S	Protect groundwater	50% reduction of certain SVOCs based on methylene chloride extractions 90 – 99 % or concentration limits for metals based on SPLP
Estimated volume of soil treatment by SVE and S/S	35,000 cubic yards	18,300 cubic yards
Technology to address contaminated sediments	Excavate, consolidate on top of areas being treated by S/S, treated by S/S, and cap	No change
Soil/sediments CALs for soil excavation	CR = 1 X 10^{-5} NCRI = 1.0	No change
Air emissions performance standard	CR = 10^{-7} at the nearest receptor for each emission source	3 lbs/hr; CR = 10^{-7} to a hypothetical resident at the site boundary
Site cover specifications	RCRA Subtitle C closure requirements if considered to be ARAR	RCRA Subtitle C closure requirements
Access, deed restrictions, long-term monitoring	Required	No change
Estimated present worth	$14 million	$10 million

III. IMPLEMENTATION OF REMEDIAL ACTIONS

On June 23, 1992, a Consent Decree between EPA and Settling Defendants was entered in Federal Court. This Consent Decree requires the Settling Defendants to implement the Selected Remedy, and to reimburse EPA for past costs and future response costs. The Settling Defendants were generators of the wastes disposed at Midco II. The Settling Defendants incorporated the Midco Remedial Corporation (MRC) to implement the Selected Remedy at Midco II.

The MRC implemented access and deed restrictions during 1992 and 1993. In 1993, the MRC conducted partial excavation of the ditch sediments/soils and consolidated and stored the excavated sediments/soils on-site under a flexible membrane liner. However, most of the contaminated sediments/soils in the ditch were left in place because there was insufficient space above the MATs to store all of the contaminated sediments/soils and because it was impractical to handle the volume of water that would be generated by further excavation (the sediment/soils were below the groundwater table). EPA has decided to defer further action on the sediment areas until the site cover is designed. Between 1993 and 1995 the MRC constructed the deep injection well and the pump-and-treat system for Midco II, and initiated continuous operation of the pump-and-treat system in February 1996. The MRC expanded the pump-and-treat system during 2002 – 2003 to improve groundwater capture.

Meanwhile, EPA and the MRC worked on the soil treatment phase of the remedy, which is the subject of ESD#3. From 1993 – 1995, EPA and the MRC cooperatively worked on the initial soil S/S treatability study as provided for in the Consent Decree. The MRC's contractor, Environmental Resources Management-NorthCentral, Inc. (ERM) tested and developed prospective generic binders for the treatability study and made arrangements for vendors to supply binders. EPA arranged for testing of the binders through its contractor, Roy F. Weston, Inc. (Weston). Weston subcontracted the actual testing work to Kiber Environmental Services, Inc. (Kiber).

Based on input from staff in EPA's National Risk Management Research Laboratory (NRMRL) and the MRC, EPA determined that the results of this initial testing were not promising, and believed that it may not be practical to demonstrate stabilization of organic compounds using methylene chloride extractions. For that reason, EPA's NRMRL conducted further treatability testing from 1995 – 1997 utilizing the SPLP to test for stabilization of both metals and organics through a contract with Science Applications International Corporation (SAIC). SAIC subcontracted the actual mixing and testing work to Kiber. Based on these results in December 1997, EPA proposed changes to the MPSs for stabilization of organic compounds using S/S, adding an MPS for stabilization of cyanide using S/S, and changes to the STALs. These changes included basing all of the STALs and MPSs on SPLP tests instead of using total analyses.

From April through June 1998, ERM conducted the grid sampling for determining the extent of soil treatment. The grid sampling and analyses were conducted as prescribed in the Consent Decree with the following exceptions: 1. the soil samples were analyzed using the SPLP test instead of the total analyses; and 2. in addition to the grid samples, sediments from the ditch, sediments consolidated on-site, and soils within the MATs were sampled. In total, 333 soil samples, 4 samples of sediments consolidated on-site, and 10 sediment/soil samples from the ditch were collected and analyzed.

From 1998 until 2002, EPA and the MRC discussed options for determining the extent of soil treatment. On February 22, 2000, EPA agreed to delay the soil treatment to give the MRC time to test use of chemical oxidation to treat the soils. ERM prepared plans and conducted a soil treatability study for chemical oxidation in 2000 and 2001. However, the results for chemical oxidation treatability results were not promising because an excessive amount of oxidant was consumed and because methylene chloride was not treated. In 2002, with EPA approval, the MRC conducted additional investigations and evaluations for development of an alternative soil treatment proposal and to test for other sources of contamination.

In October 2002, the MRC submitted a proposal for an alternative soil and groundwater treatment remedy, including facilitating SVE treatment as a separate operation and accelerating groundwater cleanup by conducting air sparging in conjunction with the SVE operation. It is expected that conducting the air sparging will enhance VOC removal from soil at and near the groundwater table, and will accelerate removal of VOCs from the most contaminated groundwater. In letters dated December 20, 2002 and February 25, 2003, EPA approved proceeding with the SVE / air sparging. Since that time, the MRC has nearly completed design of the SVE / air sparging system. It is expected that the SVE / air sparging system will begin operation at Midco II during 2005.

In the July 8, 2004 Design/Build Document for conducting SVE and air sparging at the Midco II site, EPA and the MRC have agreed upon the following procedure to test for achievement of the 97% VOC reduction using soil gas data on a treatment cell by treatment cell basis, as follows:

- Select representative vapor monitoring points for each SVE treatment cell;
- Conduct initial baseline sampling for Midco VOCs in soil gas at each selected vapor monitoring point shortly before start-up of the SVE system;
- Make sure that the vacuum data indicates that the SVE is influencing the entire treatment area;
- Determine when indicator VOC data indicate a 97% reduction in total VOCs (excluding methane) in the vapor monitoring points (confirm that at least a 97% reduction is also indicated in the extraction well data);
- Shut-down the system and allow time for soil gas concentrations to equilibrate to soil concentrations;
- Conduct confirmatory sampling for Midco VOCs in soil gas at selected vapor monitoring points;
- For each initial baseline and confirmatory sample convert the Midco VOC results to total VOCs by adding the concentrations of all Midco VOCs detected including J qualified data ($[\text{total VOCs}]_s = \Sigma\ [\text{VOC}]_{is}$, where $[\text{total VOC}]_s$ is the total VOC concentration in each sample, and $[\text{VOC}]_{is}$ is the concentration of each individual VOC in each sample);
- Add the total VOC results from all of the initial baseline samples ($VOC_{BL} = \Sigma\ [\text{total VOCs}]_s$
- Add the total VOC results from all of the confirmatory samples ($VOC_C = \Sigma\ [\text{total VOCs}]_s$;
- Calculate the percentage reduction as follows:
  $((VOC_{BL} - VOC_C) / VOC_{BL}) \times 100$
  (this calculation would be adjusted by dividing VOC_{BL} and VOC_C) by the number of samples if for some reason the number of baseline samples is not equal to the number of confirmatory samples);

- If the calculated percentage reduction is 97% or greater, then this Consent Decree SOW requirement is achieved.

In July 8, 2004 Design Build Document, the MRC also requested that the 1 X 10^{-7} air emission requirement for the SVE be applied at the nearest receptor instead of to a hypothetical resident at the site boundary because it may be impossible to meet that criteria at the site boundary because the emission source will be very close to the site boundary

The *Second Five-Year Review Report* stated that the access and deed restriction portion of the remedy were functioning as intended in the ROD, and that the groundwater pump-and-treat system portion of the remedy was functioning as intended in the ROD except for a few specific areas of concern. The report noted that the excavated sediment/soils were safely contained on-site, and that action to address the contamination remaining within the ditch sediments will be delayed until design of the final site cover. The report also noted that cleanup of the groundwater appears to be delayed because of the delay in implementing the soil remedy. However, at this time design work on the SVE / air sparging phase of the remedy is well underway, and the system is expected to be constructed and start operating during 2005. It should be noted that implementation of the air sparging technology goes beyond ROD requirements, and should result in more effective VOC removal in soils above the water table, and in soils and groundwater below the water table.

IV. BASIS FOR DOCUMENT

A. S/S Treatability Study

A comprehensive treatability study for S/S has been performed, which utilized and considered input from MRC technical representatives and staff of EPA's NRMRL. As previously mentioned, EPA and the MRC worked cooperatively on the initial treatability study to identifiy binders that could meet the MPSs for S/S specified in the 1992 ROD Amendment. In accordance with the Consent Decree, EPA tested binders supplied by the MRC. Twelve binders were tested, five from commercial vendors and seven were generic blends developed by ERM's contractor. EPA and ERM agreed upon sample locations, and decided to collect two samples from locations of high VOC, SVOC and metals contamination at Midco I, and one from a location of high metals contamination at Midco II.

The results of the testing were disappointing. Because the results for all contaminants were relatively low for the Midco II soil sample, these results were of little value in evaluating the success of the S/S treatment, and the following evaluation relies primarily on the results for the Midco I samples. For Midco I, the results for binders 1 and 2 indicated that bis(2-ethylhexylphthalate met the MPS in both samples. However, none of the other results for organic compounds met the MPSs nor indicated any other success in reducing leaching of organic compounds. The Midco I results for metals appear to identify the difficulty in reaching very low leachate values for a number of metals at the same time. The results indicated that a number of the binders met the MPSs for lead and chromium, but none were fully successful for copper and nickel. Binder 2, which was the most successful binder for stabilizing metals, met the MPSs for chromium and lead in both samples; met the MPSs for copper and nickel in one sample but did not significantly reduce leaching in the other. It should be noted that the Midco II results did not indicate stabilization of bis(2-ethylhexyl)phthalate using binders 1 or 2. In addition, all of the binders apparently caused a significant increase in PCBs, chromium and copper after treatment, but the fact that this occurred for all binders suggests that variability in the soil sample was the source of this problem. On the positive side, the testing demonstrated that large percentage reductions in VOCs were achieved by volatilization by injection of air while mixing, and by the mixing conducted for the S/S testing.

EPA developed recommendations for further testing and presented a plan for further testing to MRC. EPA staff agreed to consider MRC's recommendation to use the SPLP to test for stabilization of SVOCs. To control costs, SPLP tests had not yet been conducted on the binder/soil samples for VOCs and SVOCs. Because of the considerable expense and time that had already gone into the initial treatability study, EPA decided to conduct some limited additional testing on the binders using the most contaminated Midco I soil sample, including:

- one test for SVOCs in SPLP leachate on each soil/binder sample for one of the Midco I soil samples and the Midco II soil sample in order to screen for stabilization of SVOCs;
- one repeat test for metals, cyanide, and SVOCs in SPLP leachate on one of the untreated soil samples from Midco I and the untreated soil sample from Midco II to check for aging effects;
- one repeat test for metals in SPLP leachate on each of the the binder/soil samples from one of the Midco I soil samples and the Midco II soil sample in order to check for aging effects;
- one test for unconfined compressive strength on each soil/binder sample in order to evaluate performance against this important but relativelly inexpensive physical test.

It should be noted that EPA saved considerable costs by not proceeding with the following relatively expensive tests, which were required in the Consent Decree, during the initial treatability testing because of the disappointing results on stabilization of SVOCs and metals: hydraulic conductivity, wet-dry durability or freeze-thaw durability tests, fourier transform infra red spectroscopy, and differential scanning calorimetry.

The SPLP results for metals were similar to the previous test results. Three of the binders did not achieve the MPS for unconfined compressive strength. The only SVOCs that leached out at high enough concentrations (more than three times the quantitation limit) in the untreated soil sample to test for a significant reduction in leaching were phenol, 4-methylphenol, isophorone, and benzoic acid. Benzoic acid is a very soluble and low risk SVOC, and so is not considered. All of the binders reduced leaching of isophorone to below the detection limit, which was greater than a 70% reduction. Two of the generic binders reduced leaching of 4-methylphenol to below detection limits (greater than 90% reduction), and reduced leaching of phenol by 90% or more. The most promising binder for stabilization of SVOCs was the generic binder with the highest combined concentrations of organophilic clay and attapulgite clay.

EPA reviewed of all of the test results, and considered input from MRC representatives. Although some of the generic binders showed promise for stabilization of phenolic compounds, all of the generic binders had problems that would have made it difficult or impossible to use these binders in the field, including:

- high binder/soil ratios (for example, the most promising binder had a binder/soil ratio of 59%);
- sensitivity to water content.

For those reasons, EPA decided to test new binder/soil combinations in a second phase of treatability testing.

The phase 2 testing was conducted from January 1996 through April 1997. The untreated soil samples were collected and shipped by ERM with oversight by EPA. The actual sample preparation, binder mixing, and testing work was again conducted by Kiber, this time as a subcontractor to SAIC, who prepared the reports submitted to EPA. NRMRL staff with input from Dr. Soundararajin provided advice to SAIC regarding generic binders for testing, and an S/S vendor named STC Remediation (STC) developed its own binders for testing. Kiber conducted extensive testing using SPLP and conducted the physical testing as a subcontractor to Weston, who also conducted shipment of samples to CRL and STC. CRL also performed analyses on the untreated soil samples and performed final confirmatory analyses on the most promising soil/binder samples. CRL's analyses included SPLP tests for all contaminants, methylene chloride extractions for SVOCs, pesticides and PCBs, and methanol extractions for VOCs. At completion of the study, 23 binder formulations proposed by NRMRL staff had been tested along with 8 binders supplied by STC. The components included in the binders proposed by NRMRL staff included portland cement, organophilic clay, fly ash, kiln dust, slag powder, dimethylglyoxime, sodium silicate, sodium phosphate, ferric chloride, hyrophobized lime, quick lime, sodium sulfate, sodium sulfide, type C fly ash, sodium bentonite, calcium bentonite, activated carbon, and Mississippi Valley clay containing montmorillanite.

The phase 2 results are presented in *Start Program Special Investigation, Summary Report Solidification/Stabilization Treatability Test on Soil Samples Collected from the Midco I and II Superfund Sites, Gary, Indiana*, dated April 30, 1997 by SAIC. This report provides details on how the testing was conducted. The before treatment contaminant concentrations in the Midco II soil sample were relatively low, and for that reason most of the binder development work utilized the Midco I soil sample. The testing results for the most promising binders are summarized in the Tables 3-5a, 3-6a, 3-7a, 3-8a, 3-9, 4-4a, 4-5a, 4-6, D-1, D-2, D-3, D-4, D-5, D-6, D-7 and D-8. Tables 3-5a, 3-6a, 3-7a, 3-8a, 4-4a and 4-5a compare before and after treatment results using CRL SPLP analyses of the untreated soil samples and Kiber's SPLP analyses of the treated binder/soil samples. Tables D-1, D-3, D-5, and D-7 compare the before and after treatment results for the CRL SPLP analyses of both the untreated and treated samples. Tables D-2, D-4, D-6, and D-8 compare the before and after treatment results using CRL's analyses total metals; methylene chloride extractions for SVOCs, pesticides and PCBs; and methanol extractions for VOCs. Tables 3-9 and 4-6 show the results of the physical testing, including unconfined compressive strength, hydraulic conductivity, wet-dry durability, and freeze-thaw durability.

Inspection of Table D-4 shows that the quantitation limits (lowest concentration that can be reliably quantified) for CRL's SVOC analyses of the methylene chloride extractions of the after soil/binder samples, were generally very elevated. For that reason, no conclusion can be reached regarding stabilization of any SVOC using the Midco II data except that di-n-octylphthalate does not appear to have been stabilized. For the same reason, no conclusion can be reached regarding stabilization of many of the SVOCs using Midco I data. Using the Midco I data in Table D-4 data does suggest the following:

- stabilization occurred using both EPA 21 and STC 8 for butylbenzyl phthalate and di-n-butylphthalate;
- no stabilization occurred using either EPA 21 or STC 8 for di-n-octylphthalate, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol and pyrene; and
- no stabilization occured using EPA 21 for benzo(a)anthracene, benzo(b)flouranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd)pyrene, and n-nitrosodiphenylamine.

Based on this data, EPA has concluded that stabilization of SVOCs can not be demonstrated for Midco I or Midco II based on a methylene chloride extraction.

The Table D-6 data suggests that stabilization of the pesticides and PCBs occurred based on analyses of the methylene chloride extractions using both EPA 21 and STC 8 for Midco I, and EPA 3 and STC 3 for Midco II. The pesticides and PCBs detected in the untreated soil samples include aldrin, beta-BHC, alpha-chlordane, gamma-chlordane, dieldrin, 4,4'-DDE, endosulfan II, endrin, methoxychlor, and PCBs. The percentage reductions vary from 40% for aldrin and alpha-chlordane to 92% for PCBs. Trace concentrations of PCBs (lower than the quantitiation limits in the untreated Midco II soil sample) were detected in the Midco II after treatment samples. The pesticide and PCB detections appear to be too low to be reliable indicators of stabilization of organic compounds.

Consistent with the initial treatability study results, Tables 3-8a, D-7 and D-8 show that substantial reductions in a number of VOCs were achieved as a result of volatilization during the mixing and curing process. The results in Table D-2 provide documentation that the binders are not significantly adding to the metals concentrations in the soil/binder samples.

The SPLP test data for Midco I in Tables 3.6a and D-3 provide documentation that a reduction in leaching of SVOCs was achieved using STC binders. The SPLP results for the Midco II untreated soil sample were too low to test for stabilization of SVOCs. The SVOCs detected in the SPLP leachate from the Midco I untreated soil sample that significantly exceed (by a factor of 3) CRL's quantitation limits include: diethylphthalate; 2,4-dimethylphenol; isophorone; 2-methylphenol; 4-methylphenol; naphthalene; phenol; and 4-nitrophenol (benzoic acid and benzyl alcohol are very soluble and low toxicity SVOCs, and, therefore, will not be considered in this discussion). A number of STC's binders substantially reduced leaching of all these SVOCs. Using STC 2, STC 4, STC 7 and STC 8, all these SVOCs other than phenol were reduced to below or near the detection limits. Pentachlorophenol, which was detected at about twice CRL's quantitation level was also reduced to below detection limits using these binders. Leaching of phenol was reduced by more than 99% using STC 2. In addition, none of the STC 2, STC 4, STC 7 and STC 8 SPLP results exceeded EPA's proposed MPSs. NRMRL's binders were less successful. The data indicates that none of NRMRL's binders significantly reduced leaching of 1,4-dichlorophenol, 2-methylphenol, naphthalene or phenol. In addition, none of NRMRL's binders achieved EPA's proposed MPS for naphthalene.

None of the pesticides or PCB SPLP results for untreated soil were high enough to be useful in assessing a reduction in leaching.

The Midco I SPLP data in Tables 3-5a and D-1 document that a reduction in leaching of metals and cyanide was achieved using STC binders. Copper, nickel and cyanide were detected in the SPLP leachate above the Consent Decree MPSs. A number of STC's binders substantially reduced leaching of copper, nickel and cyanide. Using STC 2, STC 4, STC 7 and STC 8, nickel and cyanide were reduced to below the MPSs. Copper in the SPLP was reduced from 85% to 93% using these STC binders, but copper still substantially exceeded the MPS (43 ug/l for protection of aquatic life compared to after treatment SPLPs results ranging from 380 to 740 ug/l). None of the metals or cyanide leached out at concentrations exceeding the MPS in the Midco II untreated soil sample. It should be noted that use of STC 2 and STC 3 apparently increased leaching of copper to slightly above the MPS for copper.

Table 3-9 for Midco I shows that NRMRL soil/binder samples, EPA 19, EPA 20 and EPA 21 easily achieved the MPS for unconfined compressive strength (50 psi). These soil/binder samples also had favorable hydraulic conductivities results ranging from 2.9 – 4.6 X 10^{-7} cm/sec, although these samples did not achieve the MPS of 1 X 10^{-7} cm/sec. EPA 21 easily passed the freeze-thaw and wet-dry durability MPSs. STC's physical testing results for Midco I were less positive. STC 2 only achieved an unconfined compressive strength of 50 psi, and a hydraulic conductivity of 3.2 X 10^{-6}

cm/sec. STC 7 achieved more favorable results, an unconfined compressive strength of 110 psi, and a hydraulic conductivity of 2.8 X 10^{-7} cm/sec. STC 8 easily passed the wet-dry durability MPS, but failed the freeze-thaw durability MPS. Table 4-6 shows that STC 3 has the most promising physical testing results among the binders tested for Midco II. The STC 3 soil binder sample had an unconfined compressive strength of 236 psi, a hydraulic conductivity of 2.6 X 10^{-7} cm/sec, and easily passed both the wet-dry and freeze-thaw durability tests.

B. Proposed revisions to the MPSs and STALs and results of 1998 Soil Sampling

EPA has concluded that the treatability testing completed indicates the best capabilities of S/S treatment for Midco II. Based on the results of this testing, EPA proposed changes to the MPSs and to the STALs in a draft ESD distributed in December 1997. EPA proposed that the MPSs for both inorganics and organic compounds be based on SPLP tests. With the exception of copper, the draft ESD proposed continuing to utilize Consent Decree concentration limits in after treatment SPLP results as MPSs for metals. The MPS for copper was proposed to be 100 ug/l based on performance of some of STC's binders. In addition, EPA proposed to revise the MPS for hydraulic conductivity to 1 X 10^{-6} cm/sec, and to eliminate the freeze-thaw durability MPS. With these changes in the MPSs, binders STC 2 and STC 3 would have achieved all of the MPSs.

EPA also proposed that the STALs be revised to two times the MPSs. EPA's proposal would have made the MPSs and STALs consistent because both would be directed at cleanup and protection of groundwater. The result of basing the STALs on SPLP tests would be to direct soil treatment to contaminants that have the potential to cause groundwater contamination. Contaminants in this category include VOCs, isophorone, naphthalene, pentachlorophenol, phenol, arsenic, copper, chromium, nickel, lead and cyanide. At the same time the soil contaminants that would have driven the soil cleanup using the STALs from the 1992 ROD Amendment primarily because of their risks via ingestion and direct contact would become unimportant (antimony, beryllium, carcinogenic PAHs, bis(2-ethylhexyl)phthalate, PCBs, and chlordane). This should be acceptable because these contaminants have not been major groundwater contaminants at Midco II, and their ingestion and direct contact risks can be addressed by the site cover and access restrictions.

Regarding the requirement to treat the contaminated sediments by S/S, it should be noted that there was only one minor exceedance of EPA's proposed STAL in the four samples from the sediments consolidated on Midco II (281 ug/l of copper compared to the STAL of 200 ug/l). The only exceedances of the proposed STALs in the ditch soil/sediment samples were three detections of copper at 239, 297, and 714 ug/l, and two detections of cyanide at 743 and 2,790 ug/l compared to the proposed STAL of 400 ug/l.

From September 1998 through April 2000, EPA and ERM discussed alternative proposals for determining the extent of soil treatment. EPA and ERM prepared figures with proposed prioritizations of the soils based on the risks posed by leaching to groundwater. EPA developed a prioritization approach for this site based on summing each contaminant's concentration divided by its MPS, as follows:

- to obtain an indication of the groundwater risk from each contaminant in each grid sample (GWR_{ig}), divide the concentration of each contaminant (Concentration of $i)_g$ that exceeded that contaminant's MPS (MPS_i) by MPS_i (that is: if (Concentration of $i)_g \gtrsim MPS_i$, then GWR_{ig} = (Concentration of $i)_g / MPS_i$, where i is each contaminant and g is each grid; if (Concentration of $i)_g$ is less than MPS_i, then $GWR_{ig} = 0$).
- for each grid, add the indicators of groundwater risk for each contaminant to obtain an indication of the groundwater risk for that grid ($GWR_g = \Sigma\ GWR_{ig}$);
- multiply the indicator of groundwater risk for each grid by the grid volume to obtain an indication of the integrated groundwater risk for that grid ($IGWR_g$ = GWR_g X (Grid volume);
- add the integrated risk for each sample to calculate an indication of the total integrated groundwater risk for the whole site (TGWR = Σ $IGWR_g$);
- calculate the percentage risk reduction theoretically obtainable by treating or removing each grid by dividing the indicator of the integrated groundwater risk for each grid by the indicator total groundwater risk at the site and multiplying by 100 (% RR_g = $IGWR_g$ / TGWR X 100);
- place the samples in descending order of GWR_g;
- total the percentage risk reduction and soil treatment volume as grids with the highest GWR_g are added for treatment.

The figures displaying the results of using EPA's proposed soil treatment prioritization procedure showed that the MATs were not necessarily the most contaminated soils at the Site (see attached Figure for 95% relative risk reduction, from letter regarding revised calculation of relative risk, Weston, March 18, 1999). This Figure also shows that prioritization of treatment strictly based on risks to groundwater would result in discontinuities in the areas of treatment that do not appear to be logical considering what is known about the site operations.

C. Proposal to conduct air sparging over much of the site in conjunction with SVE as a separate operation, and to excavate soils having high metals and cyanide in SPLP tests

Following the unfavorable results on use of the chemical oxidation technology for soil treatment, and after conducting some further investigations, the MRC submitted the *Midco Conceptual Work Plan Alternative Remedy*, dated October 2002 (Conceptual Work Plan). Among other proposals, the Conceptual Work Plan included a proposal to conduct air sparging on much of the Midco II source area groundwater during performance of SVE as a separate operation. Air sparging is a developing technology, which was not identified in the FS and was not considered at the time of the 1992 ROD Amendment.

There are a number of major advantages to the MRC's proposal. First, because most of the source area soil (approximately six out of seven acres) will be treated by SVE, the MRC's proposal will remove most of the possibility of not treating significant soil contamination that may be screened out using a prioritization scheme. Second, conducting air sparging has the advantage that it should substantially reduce the highest groundwater VOC concentrations in a short period of time, which can probably result in discontinuation of groundwater treatment using the ultraviolet light / hydrogen peroxide technology. Third, conducting air sparging in conjunction with the SVE is expected to improve VOC removal from soil at and near the groundwater table, where the highest concentrations of VOCs occur. A fourth advantage is that the SVOCs that were detected in the SPLP tests, including phenol, pentachlorophenol, isophorone, and naphthalene, can be fairly easily biodegraded aerobically, and, therefore, significant biodegradation of these SVOCs can be expected during the SVE / air sparging treatment. In total, SVE / air sparging treatment would be conducted on approximately 79,200 cubic yards of source area soil (total above and below the water table), which is much more than the 35,000 cubic yards anticipated in the 1989 ROD or the 18,300 cubic yards anticipated in the 1992 ROD Amendment.

For those reasons and because the proposal is not inconsistent with the ROD, but indeed both facilitates and goes beyond ROD requirements, EPA approved proceeding with the SVE / air sparging system. The MRC conducted pilot testing for the SVE / air sparging system in November 2003. The results were positive regarding the implementability of the SVE / air sparging system, as conceptually designed. According to Environ's July 8, 2004 *Final Design/Build Document (Revision 1) – Soil Vapor Extraction / Air Sparging Midco II Superfund Site,* the results indicated that the area of influence of the SVE wells was larger than expected, and the radius of influence of the air sparging wells was approximately 30 feet as expected. The MRC has nearly completed design of the SVE / air sparging system, and the system is expected to be constructed and start operating in 2005.

As part of its new proposal, the MRC advocated that the air extraction and injection rates should be reduced to a bioventing / biosparging mode after the rate of VOC removal using the SVE system is reduced to an asymptotic level. The bioventing / biosparging mode of operation should be designed to focus on maintaining oxidative conditions to promote aerobic degradation rather than stripping of VOCs via advective air transport.

If the ROD is changed to include the more comprehensive treatment for VOCs as would be provided in the MRC's proposal, this raises the question of whether it is necessary to perform further treatment specifically targeted to SVOCs, metals, and cyanide in source area soils. Using EPA's proposed prioritization procedure with the 1998 sampling results, VOCs cause approximately 85% of the total risk to groundwater from source area soils. The remaining 15% of the risk is from SVOCs (3%), metals (9%), and cyanide (4%). Therefore, the total risk reduction would be 88% if all VOCs and SVOCs were removed. The 1992 ROD Amendment requires that SVE remove 97% of the total VOCs from the soil being treated. If this performance standard is achieved, then the SVE will have to remove at least 82% of the total risk to groundwater.

In actuality VOCs present a much greater relative risk to groundwater compared to SVOCs, metals and cyanide than indicated by the percentages derived from EPA's proposed prioritization procedure. VOCs are much more mobile in groundwater than SVOCs, metals, and cyanide. It appears that SVOCs, metals, and cyanide have only created localized areas of groundwater contamination at Midco II, while VOCs had migrated to near the downgradient limits of the groundwater capture zone. Furthermore, the MRC's proposal should result in substantial removal of VOCs from below the water table, which was not provided for in the 1992 ROD Amendment or in EPA's proposed draft ESD.

Relative to the groundwater threat from SVOCs, pesticides and PCBs, isophorone was detected in four of the 1998 grid soil samples in concentrations exceeding its Groundwater CAL of 79 ug/l. The maximum detection of isophorone was 11,000 ug/l which is 139 times the Groundwater CAL (see the attached tabulations of the SVOC, PCB, cyanide and metals results from the 1998 grid soil sampling from Weston's March 18, 1998 letter). In spite of this, isophorone did not exceed its Groundwater CAL during the 1997 groundwater sampling event. Naphthalene was detected exceeding its PRG (naphthalene's Groundwater CAL of 12,940 appears to be out-of-date) of 6 ug/l in 37 grid samples. The maximum detection of naphthalene was 650 ug/l, which is 108 times the PRG. Naphthalene was detected in five of the 38 groundwater samples in the 1997 groundwater monitoring with a maximum concentration of 37 ug/l. PCBs were detected in eight of the 1998 grid samples exceeding its Groundwater CAL of 0.042 ug/l. The maximum detection of PCBs was 1.7 ug/l, which is 40 times its Groundwater CAL. PCBs were detected in two of the groundwater samples in the 1997 groundwater monitoring. The maximum PCB detection in groundwater in 1997 was 23 ug/l at monitoring well C10. Although they were not included in the 1998 grid sampling, aldrin (0.23 ug/l), benzo(b)flouranthene (0.16 ug/l), benzo(a)pyrene (0.5 ug/l); and dibenz(a,h)anthracene (0.4 ug/l), all exceeded their Groundwater CALs in monitoring well C10 in 1997.

The source of the PCB, PAH, and pesticide detections in monitoring well C10 is uncertain. It is apparent that PCBs have been in groundwater at C10 for a long time because PCBs were also detected in groundwater samples from C10 during the RI. It is possible that PCB contamination detected in the SPLP at grid 3B51 (0.9 ug/l) could have migrated to monitoring well C10, but PCBs could also have migrated from other areas of Midco II, where PCBs were detected at a number of locations at up to 41 mg/kg and high concentrations of PAHs were detected during the RI. It is also possible that the contamination migrated from sediments in the ditch. At the time of the RI, it was believed that the ditch was mostly a groundwater sink, but, now that the ditch has been dammed and its flow diverted, it is likely that water in the ditch recharges the shallow aquifer. During the RI, ditch sediments were found to contain up to: 1,056,000 ug/kg of SVOCs; 34,000 ug/kg of PCBs; and 16,000 ug/kg of chlordane. After the sediment excavation in 1993, downgradient confirmatory ditch soil/sediment samples contained up to: 1.4 ug/kg of aldrin; 160 ug/kg of PCBs; 18,000 ug/kg of benzo(b)flouranthene; 7,800 ug/kg of benzo(a)pyrene; and1,300 ug/kg of dibenz(a,h)anthracene. In addition, the sediments contained other SVOCs, PAHs, and pesticides. On the other hand, no PCBs were detected in SPLP leachates from the 10 soil/sediments samples from the ditch that were collected during the 1998 grid soil sampling. Another possibility is that the PCB, PAH, and pesticide contamination at C10 is from soil contamination in the vicinity of C10. No samples have been collected for total PAHs, PCBs or pesticides in the vicinity of C10. During the 1998 grid sampling, soil samples were collected in the vicinity of C10, but these samples were only analyzed using the SPLP, and no PCBs were detected in the SPLP leachates.

Metals and cyanide results from the 1998 grid sampling indicate that very high concentrations can be moblilized from the soils. Based on the SPLP tests, a number of the soil samples leached contaminants at more than 50 times the Groundwater CALs. These results suggest a significant threat to groundwater. Cyanide, which has a Groundwater CAL of 19 ug/l (based on protection of aquatic life), was detected exceeding 950 ug/l in seven SPLP samples. Copper, which has a Groundwater CAL of 120 ug/l (based on protection of aquatic life), was detected above 6,000 ug/l in one sample. Lead, which has a Groundwater CAL of 14 ug/l, was detected exceeding 700 ug/l in one sample. Ten times the Groundwater CALs were exceeded in one sample for chromium, and one sample for nickel. In the 2002 groundwater sampling, Groundwater CALs were exceeded in one shallow groundwater sample for cyanide, and two shallow groundwater samples for copper. The detections in shallow source area monitoring wells suggest that the detections could be from continued leaching from contaminated soil.

Based on the 1998 grid soil sampling results and the groundwater data, it appears likely that localized naphthalene, PCB, PAH, pesticide, metal and cyanide groundwater contamination will continue to be present at Midco II if no additional action is taken beyond conducting the SVE / air sparging.

Other metals detected above Groundwater CALs in 2002 include barium, arsenic, manganese, iron, thallium, antimony, and vanadium. Based on the 1998 grid sampling results and detections exceeding Groundwater CALs, the barium and arsenic in groundwater does not appear to be attributable to present leaching of contaminated soils at Midco II. Groundwater data suggests that area-wide sources historically contributed to the barium and arsenic contamination possibly including the Midco II property. Manganese, iron, thallium, antimony and vanadium were not included in the analyses for the 1998 grid sampling. Groundwater data suggests that detections of these metals could be from other sources in addition to Midco II.

EPA proposed to the MRC, that only the worst of the metals and cyanide contamination be treated. EPA and the MRC have agreed that this would consist of approximately 1,000 cubic yards of soil from the following grids: 2ST2G91; 2ST3H91; 2ST3E91; 2ST3E94; 2ST4E51; 2ST4F51; and 2ST4G51. These grids include soil samples having the highest cyanide and metals SPLP results. Specifically, these are all of the grids having a $GWR_g \gtrsim 50$ from the 1998 grid sampling SPLP results for metals and cyanide from EPA's prioritization. These grids had very high SPLP results for cyanide, copper, lead, and/or chromium. Although there was one grid with very high GWR_{ig}'s for isophorone and naphthalene (2ST1I51 had $GWR_{ig} = 100$ for isophorone, and 32 for naphthalene), EPA did not proposed to address this grid because there is a good chance that naphthalene and isophorone will biodegrade under the aerobic conditions created by the SVE / air sparging system. Although there is concern about exceedances of the Groundwater CALs at monitoring well C10 for PAHs, PCBs, and pesticides, there is not enough data on the distribution of these contaminants in the soil to address them.

Instead of treating the remaining metals and cyanide contamination by S/S, the MRC has offered to excavate the soils having the highest metals and cyanide SPLP results and properly dispose of the excavated soils off-site. The soil would be treated if necessary and then landfilled. There are a number of major advantages to the MRC's proposal. For one, the work on the treatability studies has demonstrated that using S/S to reduce SPLP results to very low levels in soils having highly variable concentrations of multiple contaminants is difficult. In addition, further testing may be required if S/S is implemented because the phase 2 treatability testing did not include testing for stabilization of cadmium, chromium, lead and zinc. These metals leached out in concentrations above their MPSs in some soil samples in the 1998 grid sampling, but these metals did not leach out above MPSs in the untreated soil in the phase 2 treatability study. In addition, removing the highly contaminated soils would completely eliminate the threat to groundwater at Midco II from these soils. In contrast, the phase 2 treatability testing indicated that even using the most successful binders leaching of copper could still present a threat to groundwater.

On the other hand, it should be kept in mind that Section 121 of the Comprehensive Environmental Response Compensation and Liability Act stipulates that:

> *The offsite transport and disposal of hazardous substances or contaminated materials without such treatment should be the least favored alternative remedial action where practicable treatment technologies are available.*

At this time it appears unlikely that the 1,000 cubic yards of contaminated soil would have to be treated before it is disposed off-site.

If contaminated soil is excavated, it must be treated prior to disposal off-site if required in accordance with the LDRs identified in 40 CFR 268. The LDRs have been much better developed and defined since the 1989 ROD, when the LDRs were still under development. The LDRs that apply to off-site disposal of contaminated soils are identified in Sections 268.48 and 268.49, which state that LDRs apply to excavated contaminated soil under the following two conditions:

- if the soil when excavated (generated) exhibits a characteristic of a RCRA hazardous waste pursuant to 40 CFR § 261; or
- if the soil is determined to contain listed waste when excavated.

At Midco II, the excavated soil will almost certainly be considered to contain listed waste. Listed hazardous wastes numbered F001, F002, F003, F005, F007, F008 and F009 are known to have been disposed at Midco II. These listed hazardous wastes contain many hazardous constituents that are present at elevated concentrations in Midco II source area soils, including benzene, chlorobenzene, ethyl benzene, methylene chloride, methylethyl ketone, methyl isobutyl ketone, tetrachloroethylene, toluene, 1,1,1-trichloroethane, trichloroethylene, xylenes, cadmium, chromium, cyanide, lead and nickel. For EPA to determine that these listed hazardous wastes are not contained in the soil, the hazardous constituents listed above would have to be reduced below health-based levels. Because the SVE treatment is very unlikely to reduce all of these hazardous constituents to below health based levels, it is almost certain that the excavated soil would have to comply with LDRs prior to land disposal.

Section 261.49(d) indicates that the excavated soil would require treatment if any of the constituents that are listed in the Universal Treatment Standards table in Section 261.48 and that are reasonably expected to be present in a given volume of soil, are actually found to be present at more than ten times the universal treatment standards (UTSs). To evaluate whether existing data provides some indication of whether or not treatment of metals contamination in the excavated soils is likely to be required, ten times the UTSs for metals was compared with the 1998 SPLP grid sampling results. None of the SPLP results exceed 10 times the UTSs. This suggests that it is unlikely that treatment of metals would be required prior to land disposal. However, it must be kept in mind that the SPLP test results are not directly comparable to the regulatory limits, which are based on the Toxicity Characteristics Leaching Procedure test, EPA Method 1311 (TCLP). The SPLP and TCLP tests are almost identical except that the leaching fluid for the SPLP is a sulfuric acid/nitric acid mixture designed to simulate acid rain, but the leaching fluid for the TCLP is designed to simulate landfill leachate. Another concern is that many of the contaminants listed in Section 261.24 were not included in the 1998 grid soil testing.

To evaluate whether existing data provides some indication of whether or not treatment of organic compounds or cyanide in the excavated soils is likely to be required, ten times the UTSs for organic compounds and cyanide was compared with the tests pit sampling results from the RI. The data for organic compounds detected exceeding 10 X the UTS is summarized in the following table.

TABLE 2
SUMMARY OF DETECTIONS EXCEEDING 10 TIMES THE UNIVERSAL TREATMENT STANDARDS (UTSs) FROM TEST PIT SAMPLES COLLECTED DURING THE MIDCO I RI

CONTAMINANT	10 X UTS (MG/KG)	# SAMPLES EXCEEDING 10 X UTS (OUT OF 14)	MAXIMUM DETECTION (MG/KG)
Ethylbenzene	100	4	780
Toluene	100	1	560
Xylenes	300	2	1,600

Inasmuch as the RI test pit samples represent some of the most contaminated soil at Midco II, that only VOCs exceeded 10 X UTSs in those samples, and that the SVE system should reduce VOCs in the soil by 97%, the data in Table 2 indicates that it is unlikely that the LDRs will require treatment of excavated soil from Midco II.

For each hazardous constituent exceeding ten times the UTS in contaminated soil at the time it is excavated, the LDR treatment standard is either ten times the UTS or a 90% reduction in concentration. Generally metals are treated by stabilization, and organic compounds are treated thermally to meet the LDRs. Following compliance with the LDRs, the excavated soil would have to be disposed in an off-site RCRA hazardous waste landfill.[2]

V. DESCRIPTION OF SIGNIFICANT DIFFERENCES

The Selected Remedy before and after ESD#3 is compared in the following table. The specific changes are explained in more detail in the following subsections of ESD#3.

[2] Excavated soil could not be disposed in a non-hazardous, solid waste landfill unless the concentrations of all of the hazardous constituents in the UTS table are reduced below health-based levels.

TABLE 3
COMPARISON OF SELECTED REMEDY BEFORE AND AFTER ESD#3

AREA OF COMPARISON	BEFORE ESD#3	AFTER ESD#3
Technology to cleanup groundwater	pump-and-treat	air sparging in source area and pump-and-treat
Technology to cleanup soil below water table	pump-and-treat except S/S in areas that can be treated using localized dewatering	air sparging in source area and pump and treat
Groundwater CALs	CR = 1 X 10^{-5} NCRI = 1.0 MCLs AWQC X 3.6	No change
Technology for groundwater disposal	Deep well injection (or reinjection into the Calumet aquifer)	No change
Groundwater treatment requirements prior to deep well injection	RCRA delisting criteria (6.3 times health based levels)	No change
Technologies to treat principal threats in soils above water table and accessible by localized dewatering	SVE to treat VOCs, and in-situ S/S to treat SVOCs and metals	SVE to treat VOCs and SVOCs, and either in-situ S/S or excavation and off-site disposal for metals and cyanide
Technology to address source area soil presenting a lower long-term health threat	Site cover	Site cover following SVE on most of the source area
STALs	CR = 5 X 10^{-4} NCRI = 5.0 Lead = 1,000 mg/kg plus treat soils within MATs	Treat all soils in defined area, or if sampling is conducted treat grids where GWR_0 exceeds 50
Performance standard for SVE	97% reduction in VOCs	No change
Performance standards for in-situ S/S	50% reduction of certain SVOCs based on before and after methylene chloride extraction 90 – 99 % or concentration limits for metals based on SPLP	No S/S treatment required for SVOCs 90 – 99% or concentration limit for metals based on SPLP, except 500 ug/l for copper in SPLP For Cyanide 40 ug/l concentration limit in SPLP

Volume of soil treatment by SVE (and air sparging for ESD#3 above and below water table)	18,300 cubic yards (estimated)	79,200 cubic yards
Volume of soil treatment by in-situ S/S (or soil excavation and off-site disposal for ESD#3)	7,800 cubic yards (estimated)	1,000 cubic yards (maximum can be adjusted downward based on sampling results)
Technology to address contaminated sediments	Excavation, consolidation in source area, treatment by S/S, and cap	Excavation, consolidation in source area, and cap
Soil / sediments CALs applying to sediment excavation	CR = 1×10^{-6} NCRI = 1.0	No change
Air emissions performance standard	3 lbs/hr; CR = 10^{-7} for each emission source to a hypothetical resident at the site boundary	3 lbs/hr; CR = 10^{-7} for each emission source to nearest receptor
Site cover specifications	Comply with RCRA Subtitle C closure requirements	No change
Access, deed restrictions, long-term monitoring	Required	No change

A. Accelerate VOC removal from source area groundwater and provide more complete VOC removal in source area soils at and near the groundwater water table by performing air sparging in groundwater in conjunction with the SVE operation

According to the 1989 ROD and Section 5.C.2 of the 1992 ROD Amendment, SVE treatment was only required on soils above the water table and in the MATS and in grids that exceeded the STALs, and groundwater was to be treated only using the pump-and-treat technology. In order accelerate groundwater cleanup and improve removal of VOCs in soil at and near the groundwater table, an air sparging system shall be operated in conjunction with the SVE system. On September 3, 2004, EPA provided partial approval of the design/build document for the SVE / air sparging system. Specifically, EPA approved initiation of construction of the pipelines for the system, but required further evaluation of the risks from the air emission, and further work on the plan for operating the system. The approved layout of the system including monitoring points is shown on the attached Sheet 16 of the July 1994 draft of the design / build document.

Implementation of the SVE / air sparging system, in accordance with a design/build document as approved by EPA, and meeting the 97% VOC in soil reduction requirement, will satisfy the requirement for in-situ treatment of VOCs in source area soil. SVE / air sparging can reduce VOCs in soil by the physical process of air stripping by advective air transport, and by promoting aerobic biodegradation within the soils and aquifer. SVOCs can also be reduced by biodegradation and to a limited extent by air stripping. It is anticipated that operation of the SVE / air sparging system will result in an initial period of high VOC removal via advective air transport. When the rate of VOC removal by advective air transport is reduced to relatively low levels, the air extraction and injection rates may be reduced to most efficiently remove VOCs and SVOCs, while still achieving the 97% VOC reduction requirement in a reasonable amount of time.

The comprehensive removal of VOCs in source area soils and groundwater is expected to reduce VOC groundwater concentrations enough to eliminate the need for treatment of the contaminated groundwater from the pump-and-treat system by hydrogen peroxide / ultraviolet light oxidation prior to deep well injection. This will reduce the MRC's operation and maintenance costs substantially. However, it is still possible that sporadic detections of PAHs or pesticides will necessitate continued operation of the hydrogen peroxide / ultraviolet light system.

In addition, it is possible that the Groundwater CALs will be achieved sooner. On the other hand, even after a 97% reduction in VOCs as a result of SVE treatment, it is possible that continued leaching of VOCs could prevent groundwater from achieving the CALs for many years. For example, if 3% of the methylene chloride detected in the SPLP leachate from the grid 3R54 soil sample leaches out, it would contain 234 ug/l of methylene chloride compared to the Groundwater CAL of 5 ug/l. This is noted only to indicate that it is possible that a significant risk of VOC contamination of the groundwater will remain after the SVE treatment. In actuality the equilibrium concentrations in water will probably not be directly proportional to the concentration in soil. Because the most mobile VOCs would be removed first, the VOCs that would remain in the soil after SVE treatment would probably be less mobile. In addition, the SVE treatment will concentrate on the soils with the highest concentrations. It is also likely that metals, PCB and pesticide contamination in groundwater will persist for many years.

B. Eliminating the requirement to treat SVOCs in source area soils by in-situ S/S, and instead consider treatment of SVOCs that occurs in conjunction with the SVE treatment to be sufficient

This section replaces the requirements in Section V.C.2 of the 1992 ROD Amendment to meet the MPSs for stabilization of organic compounds using in-situ S/S treatment on soils in the MATs and soils that exceed the STALs. As explained below, this section eliminates the requirement to treat SVOCs in soil, except to the extent required to comply with LDRs in soils that are excavated and disposed off-site.

The soil treatment for organic compounds in the 1992 ROD Amendment was aimed at relatively non-mobile and relatively persistent organic compounds including bis(2-ethylhexyl)phthate, PAHs, PCBs, aldrin, chlordane and dieldrin. These organic compounds do not present a major threat to groundwater according to the available groundwater monitoring data, but could present a significant threat via ingestion and direct contact exposures if the site was developed in the future. By themselves, the risks presented by these organic compounds are borderline for being considered a principal threat.[3] Treatment of these organic compounds appeared to be cost effective when it was believed that they could be addressed by S/S using the same equipment and operation as used for the metals treatment.

Unfortunately, the treatability testing has been unable to demonstrate that these organic compounds can be treated by S/S. Using the methylene chloride extractions there was little if any indication of treatment by S/S, and these organic compounds did not leach out in significant concentrations using the SPLP tests. The only well documented technology for treating these types of organic compounds in soil is thermal treatment, and a separate operation involving thermal treatment would probably be required to significantly treat these SVOCs. The alternative of conducting soil treatment using SVE followed by incineration was evaluated in the FS (Alternative 5C). This alternative was estimated to cost approximately $15 million more than the SVE followed by S/S (Alternative 5E). Alternative 5C was rejected primarily because of its cost and concern about the public opposition to the incineration. EPA continues to believe that it is not cost effective to conduct soil incineration to treat these organic compounds for the following reasons:

- groundwater monitoring data indicate that these organic compounds are not a major threat to groundwater;
- concentrations of these organic compounds are borderline for defining them to constitute a principal threat;
- public health and environmental threats from these organic compounds can be controlled by the site cover, access restrictions, and restrictions on future usage of the site;
- costs for conducting extensive soil incineration is high.

The other organic compounds of concern are those that could present a significant risk of groundwater contamination based on the SPLP tests. This includes isophorone, and naphthalene. According to the treatability test results, it is possible to reduce the groundwater risk from these organic compounds through S/S. However, EPA is not

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[3] The highest detections in soils during the RI and the associated risk for residential soil usage based on the assumptions used for the Region 9 PRGs are as follows:

COMPOUND	CONC. MG/KG	CR
bis(2-ethylhexyl)phthalate	260	7.4×10^{-6}
PCBs	41	1.9×10^{-4}
benzo(a)anthracene	3.1	5×10^{-6}
benzo(b)flouranthene	4.5	7.2×10^{-5}
benzo(a)pyrene	0.88	1.4×10^{-5}
dibenz(a,h)anthracene	0.15	2.4×10^{-6}

including requirements for treatment of these organic compounds by S/S for the following reasons:

- these compounds are fairly easily biodegraded under aerobic conditions and the SVE / air sparging system is expected to facilitate this biodegradation;
- the treatability testing indicated that stabilization of SVOCs is difficult;
- extensive testing would be required to confirm the effectiveness of the S/S; and
- the pump-and-treat system can be used to contain contaminated groundwater.

For these reasons, EPA will consider the SVE / air sparging operation to provide adequate treatment of SVOCs in source area soils. Furthermore, EPA will not require monitoring specifically for quantifying the extent of SVOC treatment resulting from the SVE operation because the soil contamination is so variable that testing the effectiveness of SVOC treatment using the SVE system using before and after SPLP tests would be unlikely to produce reliable results at a reasonable cost.

C. Changing soil remediation requirements for source area soil contaminated with metals and cyanide

This section replaces many of the requirements relative to the extent and type of treatment of source area soils for metals and cyanide contained in Section V.C.2 of the 1992 ROD Amendment. The treatability study data, 1998 grid soil sampling data, and groundwater data indicate that metals and cyanide contamination in soil is likely to cause continuing groundwater contamination if no further action is taken after the SVE. For that reason after completion of the SVE / air sparging treatment, the most highly contaminated areas of metals and cyanide contamination, which are considered to present a principal threat to groundwater at the site, must be addressed in accordance with this Section after completion of the SVE treatment. Treatment of lower level soil contamination is not required because metal and cyanide contamination generally results in limited migration in groundwater, and because the groundwater pump-and-treat system can be used to contain groundwater contamination if necessary.

1. Excavation and off-site disposal is added as an acceptable remedial option for the soils that are considered to present principal threats due to metals or cyanide contamination: EPA is allowing this remedial option for the following reasons:

- treatability studies have demonstrated that it is difficult to develop an acceptable soil binder that can achieve MPSs for soils having highly variable concentrations of multiple contaminants;
- the reduced quantity of soil involved is likely to make excavation and off-site disposal more cost effective relative to S/S, which requires extensive soil characterization and binder testing; and
- soil removal will completely eliminate that soil as a source of groundwater contamination, but S/S would not do so at least for copper.

If the soil is excavated, disposal must comply with current RCRA regulations, including the LDRs in 40 CFR § 268. It should be noted that, it appears unlikely that the excavated soil will require treatment prior to off-site disposal.

2. The area of soils considered to present principal threats due to metals or cyanide contamination is defined: ESD#3 changes the orientation for the soil treatment from protection from public health threats from soil ingestion, direct contact and inhalation (based on total soil concentrations), to protection of groundwater for residential usage and aquatic life in nearby surface waters (based on SPLP analyses). EPA is making this change for the following reasons:

- the site cover, access restrictions, and restrictions on future usage can be used to control threat from soil ingestion, direct contact and inhalation;
- extensive SPLP data is now available from the 1998 grid sampling;
- the only data on total metals and cyanide is from the RI, but much of the arsenic data from the RI has been determined to be unusable, and most of the cancer risk from ingestion was from arsenic (see Section III of the 1992 ROD Amendment);
- controlling risk of groundwater contamination has the benefit of reducing the time and expense of the groundwater treatment portion of the remedy.

Using EPA's procedure for prioritizing treatment for this site, EPA has selected the following grids for further remedial action after completion of treatment by SVE / air sparging: 2ST2G91; 2ST3H91; 2ST3E91; 2ST3E94; 2ST4E51; 2ST4F51; and 2ST4G51. The total volume of soil in these grids is approximately 1,000 cubic yards. This reduces the estimated amount of treatment from an estimated 18,300 cubic yards in the 1992 ROD Amendment. This replaces the requirement to treat all soils in the MATs and in grids exceeding the STALs, as provided for in the 1992 ROD Amendment. The list of grids includes all grids having $GWR_g \geq 50$.

3. Option to sample after completion of SVE treatment: It is possible, that the SVE / air sparging treatment will result in degradation of cyanide, and reduce the leachability of metals. For that reason, EPA will allow the option of testing the soil within the grids listed in Section C.2 after completion of the SVE treatment to evaluate whether the soils still constitute a principal threat, in accordance with the following procedure:

- collect a representative soil sample from each grid;
- analyze each sample for SPLP cyanide and SPLP metals;
- for each contaminant in each grid, calculate GWR_{ig} by dividing the concentration of each contaminant that exceeded MPS_i by MPS_i (that is: if (Concentration of $i)_g$ is greater than MPS_i, then GWR_{ig} = (Concentration of $i)_g$ / MPS_i, where i is each contaminant and s is each sample); if (Concentration of $i)_g$ is less than MPS_i, then $GWR_{ig} = 0$);
- for each grid, calculate GWR_g by adding GWR_{ig} for all contaminants in the grid sample ($GWR_g = \Sigma\ GWR_{ig}$);
- if GWR_g equals or exceeds 50, then soil in that grid is defined as a principal threat and must be excavated and disposed off-site in accordance with Section C.1, or treated by in-situ S/S in accordance with performance requirements in the

ROD as updated by ESD#3 before the site cover is installed;

- if GWR_g is less than 50, then soil in that grid will be defined as a low-level threat, and will not have to be excavated or treated before the site cover is installed.

In essence this makes multiples of $GWR_g = 50$ for metals and cyanide the new STALs replacing the STALs in the 1992 ROD Amendment. However, the new STALs will only be applied to the 1,000 cubic yards selected for further action, not to the entire source area. In addition, as previously mentioned, further sampling and use of the new STALs is optional. This change has potential to reduce costs by eliminating excavation or treatment requirements for metal and cyanide contaminated soils that are adequately remediated through the SVE / air sparging treatment.

4. Revised performance standards for in-situ S/S treatment of metals and cyanide: Section V.C.2 of the 1992 ROD Amendment provided MPSs, including percentage reductions in mobility and concentration limits, for stabilization of metals. These MPSs are still effective if the in-situ S/S option is implemented, with the following revisions:

- the concentration limit for copper is changed from a concentration limit of 43 ug/l to 500 ug/l because the phase 2 treatability study demonstrated that the concentration limit for copper was not achievable, and that 500 ug/l appears to be the lowest concentration achievable.
- a concentration limit of 40 ug/l is added for cyanide because the phase 2 treatability study and groundwater data demonstrates: that cyanide in soil is a threat to groundwater; and that cyanide can apparently be stabilized to below 40 ug/l using S/S.

This change adjusts the S/S performance standard for copper to a concentration that can be achieved, and adds a performance standard for cyanide. Cyanide's concentration limit of 40 ug/l is based on the project required detection limit for cyanide in water, which exceeds the concentration for protection of aquatic life of 20.3 ug/l. It should be noted that the new MPS for copper of 500 ug/l is less stringent than used in the EPA prioritization, which was 100 ug/l; and the cyanide MPS of 40 ug/l is more stringent than the MPS used in the EPA prioritization, which was 200 ug/l. For that reason, if the resampling option is implemented, then copper will be weighted less and cyanide weighted more than they were in EPA's prioritization procedure.

5. Impact on groundwater cleanup: Once the SVE is completed, and the soils containing the metals and cyanide that are considered to constitute part of the principal threat at the site are addressed, the risk of groundwater contamination should be substantially reduced. If the SVE treatment essentially eliminates the VOCs in the source area, it would be expected that Groundwater CALs for the VOCs would be achieved fairly quickly. Addressing the worst of the metals and cyanide contamination in source area soils, would be expected to reduce the highest of the metals and cyanide groundwater contamination. The combined result, may be that EPA could approve shut-down of the pump-and-treat system within a few years after completion of the SVE and metals / cyanide remediation either through achievement of the Groundwater CALs, or through a technical impracticability waiver.

D. Eliminating the requirement to treat excavated sediments using in-situ S/S

The excavated sediment pile will be included in the area treated by SVE. This treatment should be effective in removing VOCs and some SVOCs. In 1998, SPLP tests were conducted on four samples from the excavated sediment pile. The only exceedance of the ESD#3 STALs in the four samples was one detection of cyanide at 149 ug/l compared to the ESD#3 STAL of 40 ug/l (GWR_{io} = 3.7). EPA has determined that the threat to groundwater from the cyanide and metals contamination in the excavated sediments is not high enough to constitute a principal threat at the site. At the time of the 1992 ROD Amendment, it was anticipated that the incremental costs for treating the excavated sediments by S/S would be very minor because the sediments would be treated in conjunction with the contaminated soils below the sediments. However, with the changes in this ESD, treating the excavated sediments by S/S would add significantly to the costs. For these reasons, ESD#3 eliminates the requirement to treat the excavated sediments by in-situ S/S.

As previously mentioned, EPA has decided to defer making a final decision regarding addressing the contaminated soils/sediments left in the ditch until design of the final site cover.

E. Changing the point of application of an air emission control requirement

Because the air emission source for the SVE is very close to the site boundary, EPA agrees to apply the 1 X 10^{-7} air emission requirement for the SVE to the nearest receptor instead of to a hypothetical resident at the site boundary. This essentially changes the point of application back to what was provided for in the 1989 ROD. This will eliminate the need for air emission controls that are unnecessarily stringent.

VI. SUPPORT AGENCY COMMENTS

IDEM has reviewed and concurs with the changes identified in this ESD.

VII. AFFIRMATION OF THE STATUTORY DETERMINATION

EPA believes that the Midco II Selected Remedy remains protective of human health and the environment, and complies with the Federal and State requirements, which are applicable or relevant and appropriate. In addition, the Selected Remedy continues to utilize permanent solutions and alternative treatment to the maximum extent practicable for the Midco II site.

IX. PUBLIC PARTICIPATION ACTIVITIES

EPA will publish a notice of issuance and a summary of this ESD in a local newspaper.

An index of the Administrative Record supporting the 2004 ESD is attached. The Administrative Record for this ESD and other EPA decision documents are available for public review at repositories located at the following locations:

The City of Gary Public Library
220 West 5th Street
Gary, Indiana 46402

U.S. EPA, Region 5, Records Center
77 W. Jackson Blvd., 7th floor
Chicago, Illinois

Comments or questions are invited and can be directed to:

United States Environmental Protection Agency
Richard Boice
77 West Jackson Blvd.
Chicago, IL 60604
(312) 886-4640

Stephanie Andrews
OLQ / Federal Programs Section
The Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, IN 46206 – 6015
(317) 234-0358

Richard C Karl   9-30-04

Richard C. Karl   DATE
Director, Superfund Division

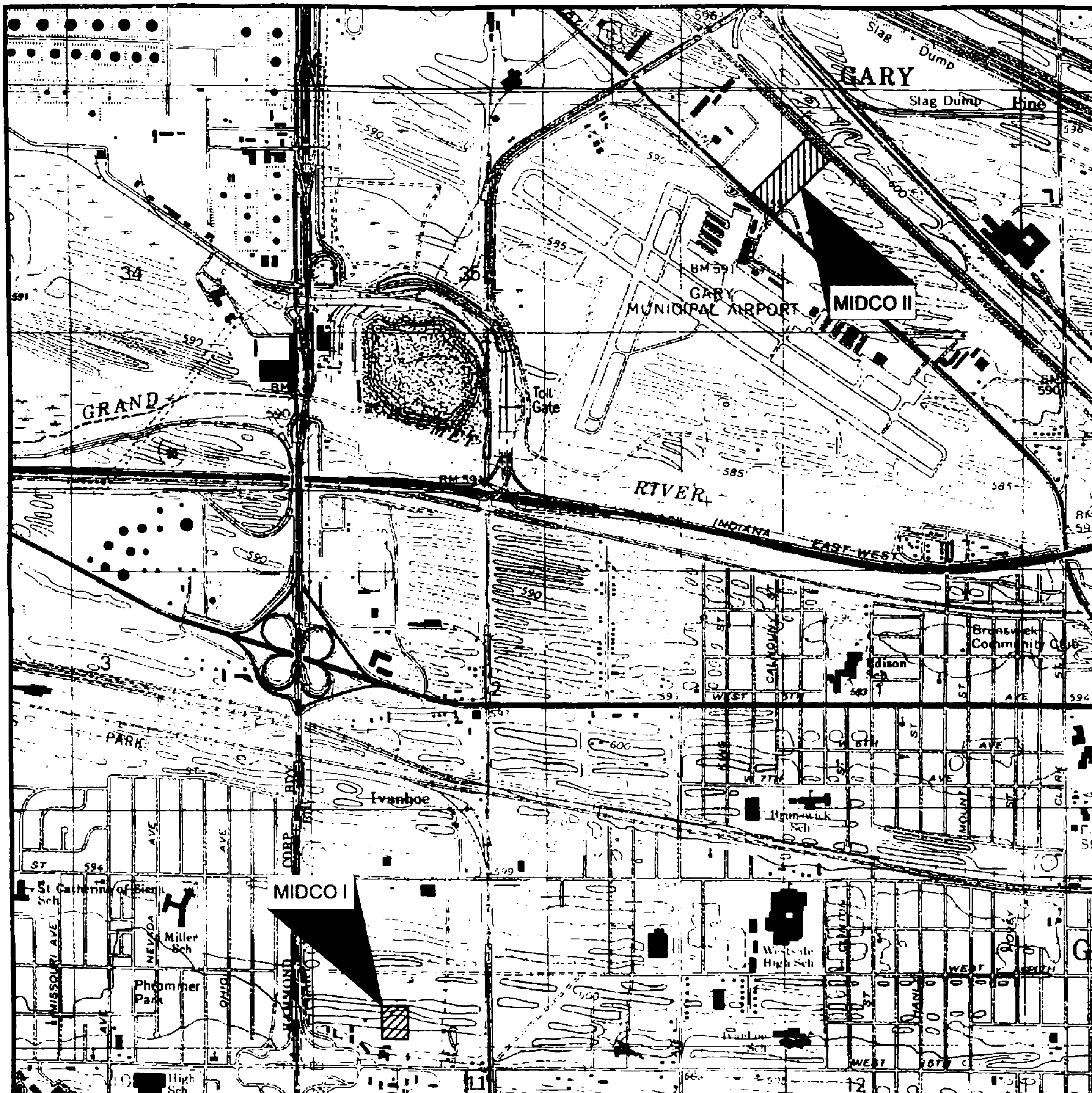
LIST OF ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or relevant and appropriate requirements
AWQC	Ambient Water Quality Criteria
cm/sec	centimeters per second (a unit for hydraulic conductivity)
(Concentration of i)$_g$	Concentration of contaminant i in grid g
Conceptual Work Plan	*Midco Conceptual Work Plan Alternative Remedy*, ERM and Environ, October 2002
Consent Decree	Consent Decree for Civil Action No. H 79-556, United States of America vs Midwest Solvent Recovery, Inc., et al. (Defendants); American Can Company, Inc., et al. (Third Party Defendants); vs Accutronics, et al. (Third Party Defendants), which was filed in the United States District Court in Hammond, Indiana on July 23, 1992.
CR	Carcinogenic risk
CRL	EPA, Region V's, Central Regional Laboratory
ENVIRON	ENVIRON International Corporation, a consultant for the MRC from June 2000 to the present
EPA	United States Environmental Protection Agency
ERM	Environmental Resources Management – North Central, Inc. or ERM-Enviroclean – North Central, Inc., affiliated consulting firms working for the MRC from around 1987 – September 2002
ESD	Explanation of Significant Differences (EPA document to describe and explain changes to the ROD that do not require an amendment)
ESD#1	Explanation of Significant Differences dated 1 / 9 / 96 (EPA document to change maximum allowable concentration (prior to deep well injection) and Groundwater CAL for 1,1-dichloroethane)
ESD#2	Explanation of Significant Differences dated 11 / 2 / 99 to change the maximum allowable concentration and Groundwater CALs for certain polyaromatic hydrocarbons

ESD#3	This Explanation of Significant Differences
Groundwater CALs	groundwater cleanup action levels (these are concentrations of contaminants required to be achieved at the end of the groundwater cleanup)
GWR_g	Indicator of groundwater risk for a grid calculated by adding GWR_{ig} for that grid
GWR_{ig}	Indicator of groundwater risk from contaminant i and grid g calculated by dividing the contaminant concentration of i in grid g by the MPS_i
IDEM	Indiana Department of Environmental Management
$IGWR_g$	Indicator for groundwater risk from a grid calculated by multiplying GWR_g by the grid volume;
Kiber	Kiber Environmental Services, Inc., Atlanta, Georgia. A contractor that performed treatability study work on S/S
LDRs	Land disposal restrictions under the Resource Conservation and Recovery Act, as defined in 40 CFR § 268
MCLs	Primary Maximum Contaminant Levels from 40 CFR 121
mg/kg	milligrams per kilogram, a unit for contaminant concentration in soil, equal to parts per million
MRC	Midco Remedial Corporation (a corporation formed by the Settling Defendants to the Midco I and Midco II Consent Decree for the purpose of implementing the requirements of the Consent Decree)
MPS	Minimum performance standards for S/S as defined in the ROD
MPS_i	Minimum performance standard for S/S as defined in the ROD for contaminant i
NCRI	Noncarcinogenic risk index,
NRMRL	EPA's, National Risk Management Research Laboratory
psi	pounds per square inch (a unit for compressive strength)

PAHs	Polyaromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PRG:	Preliminary Remedation Goals developed by Region 9, EPA to screen water or soil data for potential risks from water usage and direct contact with soils
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision (EPA's official decision document). Unless otherwise noted, this refers to the 1989 ROD as updated by the 1992 ROD Amendment and the ESDs.
% RR_g	Indicator of percentage reduction in groundwater risk by treatment or removal of each grid calculated by dividing $IGWR_g$ by TGWR and multiplying by 100;
SAIC	Science Aprplications International Corporation
Sediment/Soil CALs	sediment/soil cleanup action levels (required to be achieved in soil below sediments that are excavated)
Selected Remedy	The remedial actions selected by EPA in a ROD, as changed by subsequent ROD Amendments and ESDs
SPLP	Synthetic Precipitation Leaching Procedure, EPA Method 1312 from *Test Methods for Evaluating Solid Waste,* SW-846, EPA, Office of Solid Waste
S/S	solidification/stabilization
STALs	soil treatment action levels (source area soils that exceed these action levels must be treated by S/S and or by SVE)
STC	STC Remediation, Scottsdale, Arizona, a S/S vendor
SVE	soil vapor extraction
SVOCs	semivolatile organic compounds
TCLP	Toxicity Characteristics Leaching Procedure, EPA Method Method

	1312 from *Test Methods for Evaluating Solid Waste,* SW-846, EPA, Office of Solid Waste
TGWR	Indicator of the total groundwater risk from the site calculated adding $IGWR_g$ for all grids on the site;
ug/l	micrograms per liter, a unit used to express the concentration of contaminants in groundwater and is equal to parts per billion in water
ug/kg:	Concentration of a Contaminant in Soil in Micrograms of Contaminant per Kilogram of Soil
UTS	Universal Treatment Standards for land disposal in 40 CFR § 268.48
VOCs	volatile organic compounds
Weston	Weston Solutions, Inc., EPA's oversight contractor



SCALE 1:24000

1 1/2 0 1 MILE

2000 0 2000 4000 6000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SOURCE: U.S.G.S. 7.5 minute series (topographic)
Highland Quadrangle, Indiana 1991
Whiting Quadrangle, Indiana 1991

CPF\Midco Alternative Remedy\ACAD\Figure 1 Site Location

ENVIRON 740 Waukegan Road, Suite 401, Deerfield, IL 60015	Site Location Map Midco I and II Sites Gary, Indiana	Figure 1

Drafter: CJG Date: 06/28/02 Contract Number: 21-8601W Approved: Revised:

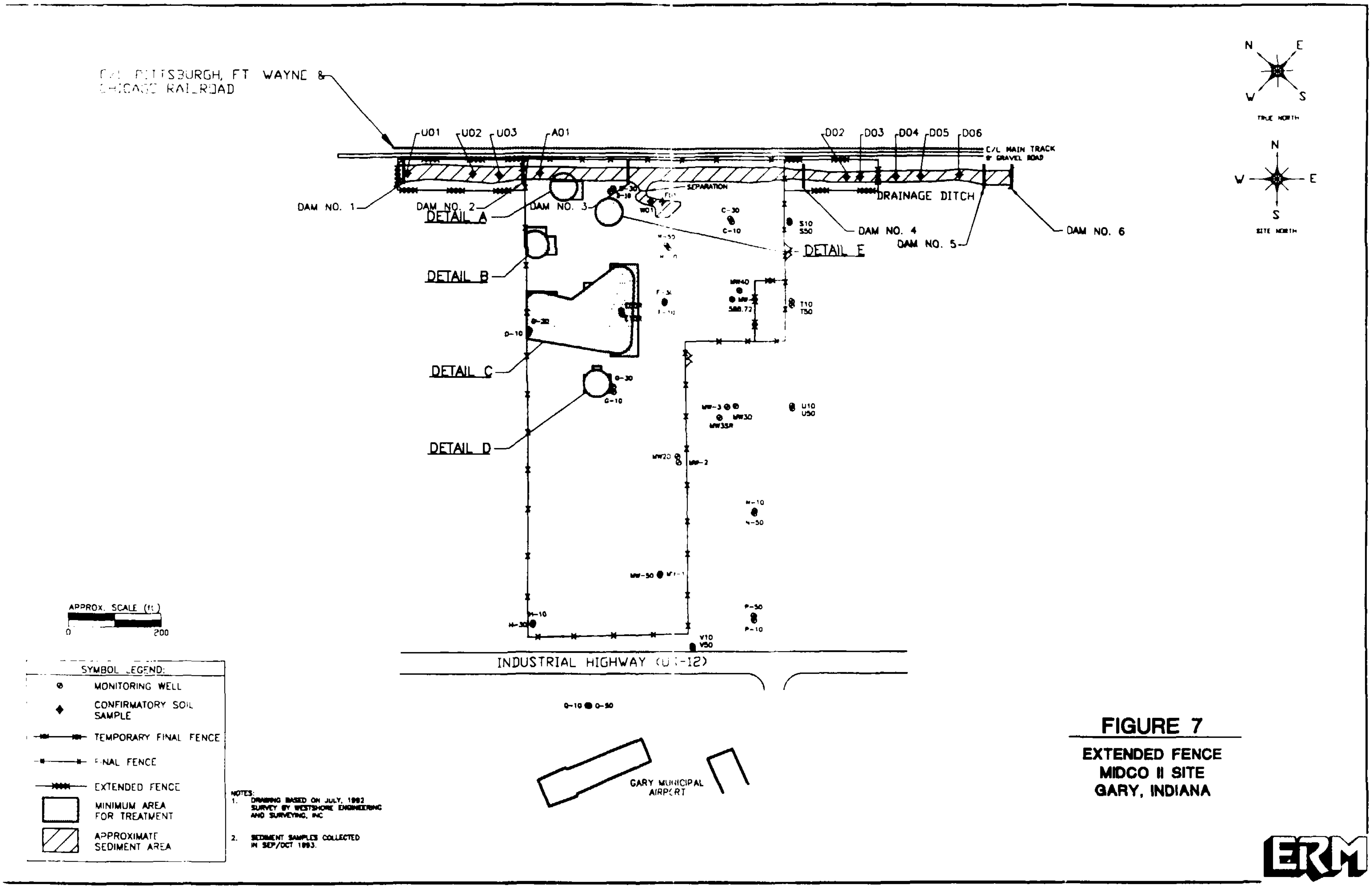
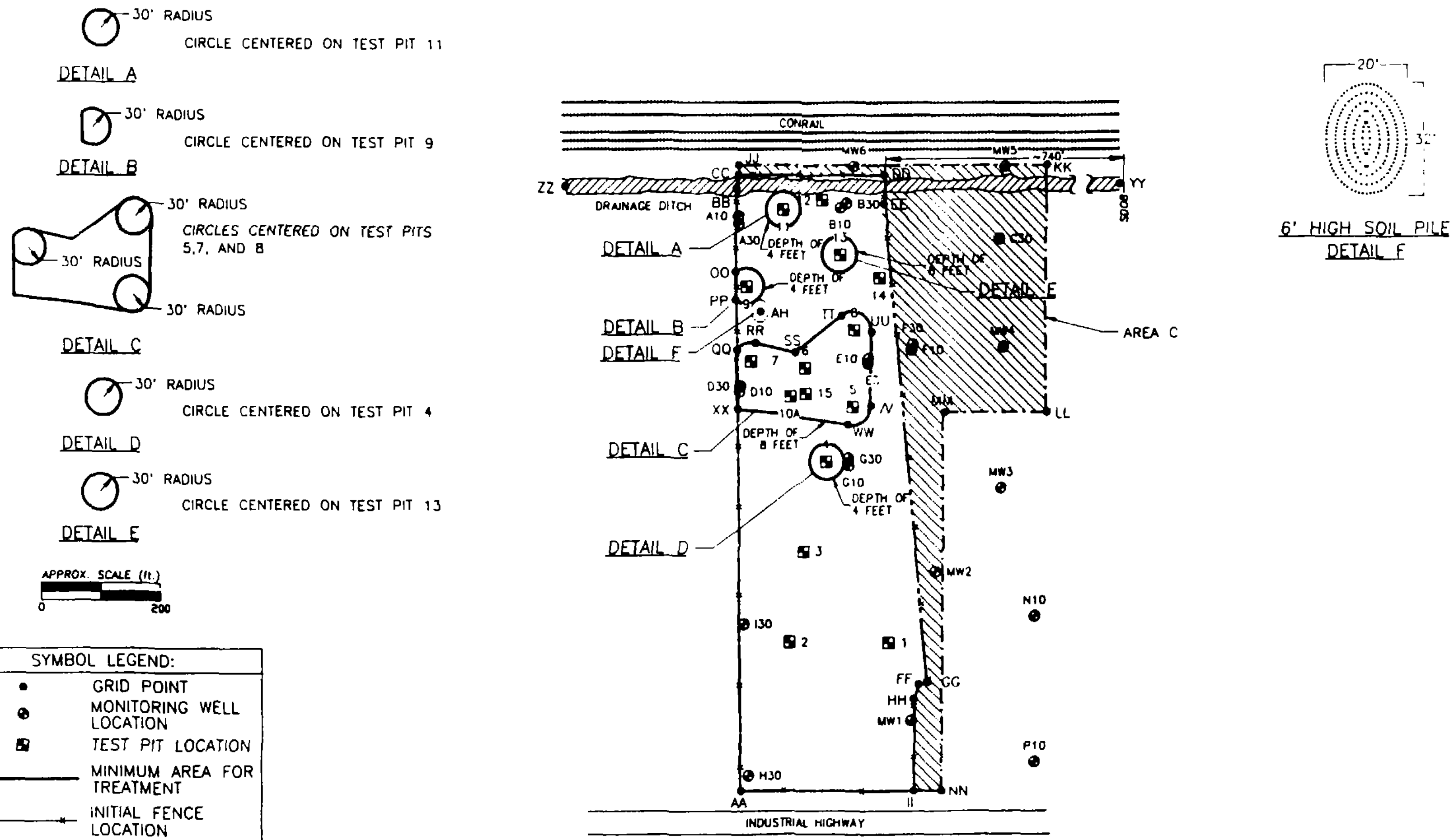


FIGURE 7

EXTENDED FENCE
MIDCO II SITE
GARY, INDIANA

ERM

FIGURE 2



SYMBOL LEGEND:	
•	GRID POINT
⊕	MONITORING WELL LOCATION
◘	TEST PIT LOCATION
———	MINIMUM AREA FOR TREATMENT
—+—+—	INITIAL FENCE LOCATION
—·—·—	MINIMUM COVER BOUNDARY
—·—·—	SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES
....	SOIL PILE
(hatched)	AREA C
(hatched)	SEDIMENTS TO BE REMEDIATED

NOTE
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE MINIMUM COVER BOUNDARY ARE COINCIDENT.

2. LINES DEMARKING THE INITIAL FENCE LOCATION, MINIMUM COVER BOUNDARY, SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS CC, AA, AND II.

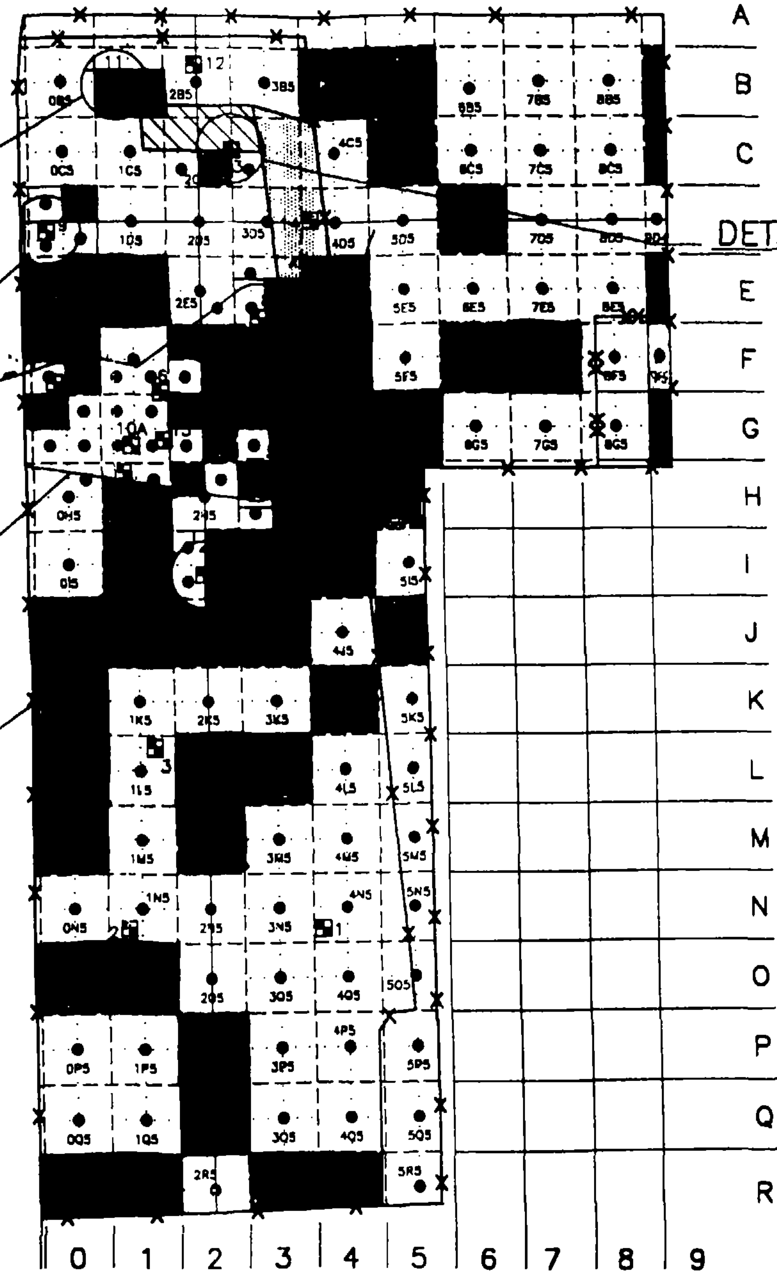
FIGURE 2
MIDCO II REMEDIATION
MIDCO II
GARY, INDIANA
ALTERNATIVE 10

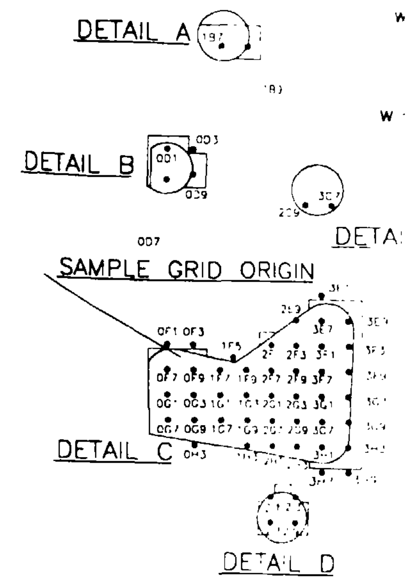
ERM

MIDCO 12/3/91 0184

Samples Contributing to 95% Relative Risk

2ST3R54	2ST3H91	2ST0G11	2ST7F54
2ST3R51	2ST4K51	2ST0G14	2ST7F51
2ST1H54	2ST1R51	2ST0O51	2ST3H34
2ST1H51	2ST2G31	2ST1E51	2ST3H31
2ST3F94	2ST0R54	2ST9E41	2ST3G91
2ST3F91	2ST3J54	2ST0E51	2ST1J51
[illegible]	2ST3J51	2ST6D51	2ST3F14
[illegible]	2ST3F74	2ST6F51	2ST3F11
[illegible]	2ST3F71	2ST5B54	2ST2I31
[illegible]	2ST2G34	2ST5B51	2ST0F34
[illegible]	2ST9B11	2ST0F94	2ST0F31
[illegible]	2ST0K51	2ST0F91	2ST2Q54
[illegible]	2ST1H51	2ST4E54	2ST2Q51
[illegible]	2ST1B71	2ST3F94	2ST4B51
[illegible]	2ST0L54	2ST3F91	2ST2H14
[illegible]	2ST0L51	2ST9C44	2ST2H11
[illegible]	2ST9B44	2ST9C41	2ST9G44
[illegible]	2ST0F11	2ST3F34	2ST9G41
2ST2J51	2ST0D34	2ST3F31	2ST2C91
2ST3G34	2ST0D31	2ST5J54	2ST2F14
2ST3G31	2ST2F91	2ST5J51	2ST2F11
2ST1O54	2ST3H94	2ST5C51	2ST2F31
2ST1O51	2ST0J54	2ST2G14	2ST4I54
2ST4L51	2ST0J51	2ST2G11	2ST3I54
2ST0R54	2ST1B94	2ST2I91	2ST3I51
2ST4H54	2ST1B91	2ST0M54	
2ST4H51	2ST5H54	2ST0M51	
2ST3G34	2ST5H51	2ST2M51	
2ST3G31	2ST4R54	2ST2P54	
2ST2G91	2ST4R51	2ST2P51	





■ = 95 Percent Relative Risk Re

APPROX. SCALE (ft.)

0 150

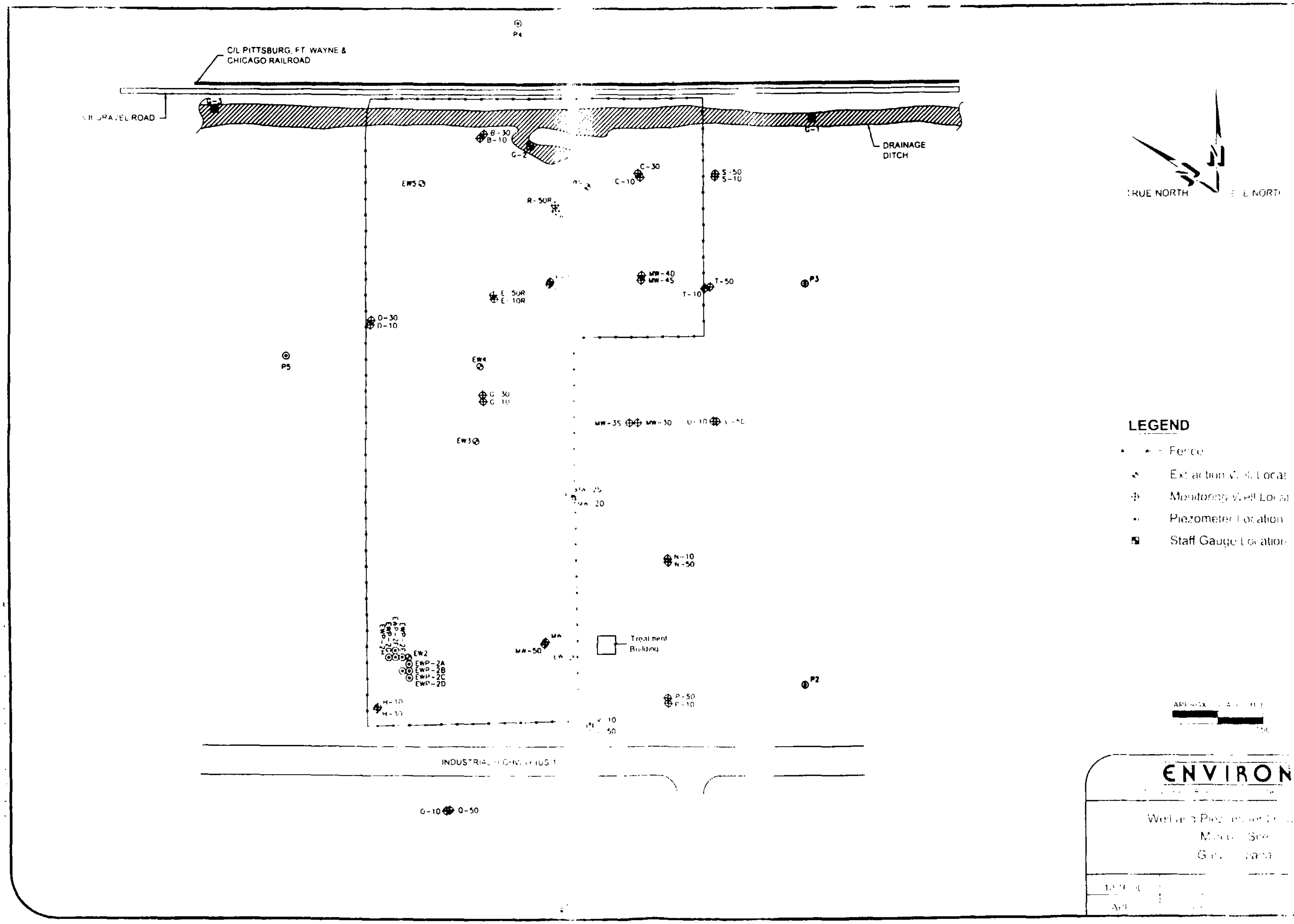
SYMBOL LEGEND

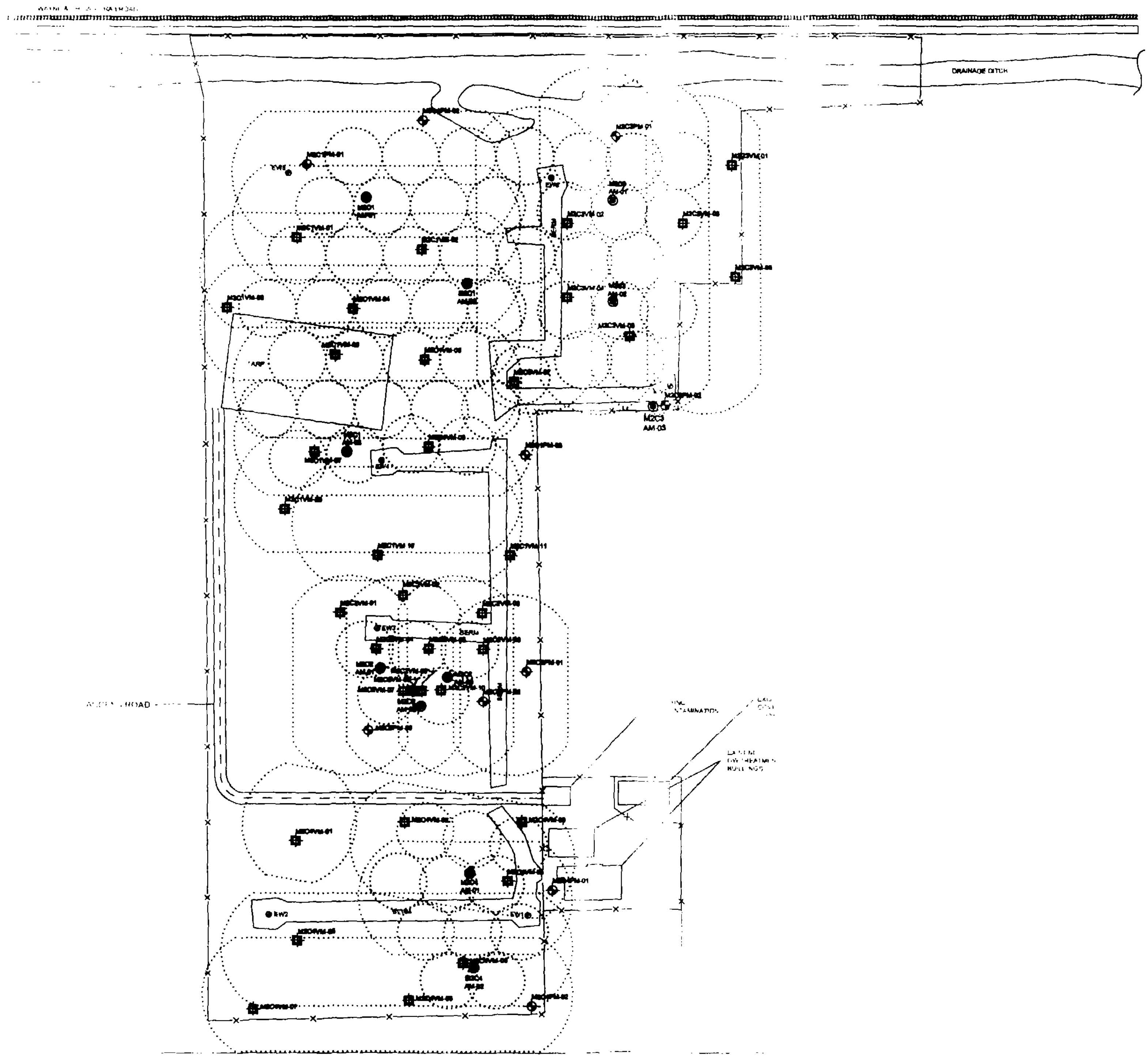
- REMEDIAL INVESTIGATION TRENCH LOCATION
- SAMPLING LOCATION
- 30-FOOT GRID LINE
- 60 FOOT GRID LINE
- FINAL FENCE LOCATION
- TEMPORARY FINAL FENCE LOCATION
- INITIAL MINIMUM AREA OF TREATMENT BOUNDARY
- MODIFIED MINIMUM AREA OF TREATMENT
- FORMER DISPOSAL PIT (APPROX. LOCATION)
- FORMER FILTER BED (APPROX. LOCATION)

NOTE:
DRAWING BASED ON FIGURE 2 OF THE STATEMENT OF WORK AND THE JULY, 1992 SURVEY BY WESTSHORE ENGINEERING AND SURVEYING, INC. EXCEPT FOR THE GARY MUNICIPAL AIRPORT.

95 Percent Relative Risk Reduc

SOIL SAMPLE LOCATIONS
30-FOOT GRID IN MINIMUM AREAS FOR TRE
MIDCO II SITE
GARY, INDIANA


C/L PITTSBURG, FT. WAYNE & CHICAGO RAILROAD
DRAINAGE DITCH
TRUE NORTH
LEGEND
Fence
Piezometer Location
Staff Gauge Location
G-1
G-2
B-30
B-10
EW5
R-50R
C-30
C-10
S-50
S-10
MW-40
MW-45
T-50
T-10
P3
E-50R
E-10R
D-30
D-10
P5
EW4
G-30
G-10
EW3
MW-35
MW-30
N-10
N-50
Treatment Building
MW-50
EW2
EWP-2A
EWP-2B
EWP-2C
EWP-2D
P2
P-50
P-10
H-10
P4
O-10
O-50
ENVIRON



LEGEND
EXISTING EXTRACTION WELL
VAPOR MONITORING POINT (VM)
PRESSURE MONITORING POINT (PM
PILOT TEST MONITORING POINTS
AIR SPARGE MONITORING POINT (AM
AS RADIUS OF INFLUENCE
SVE AREA OF INFLUENCE
EXISTING FENCE

120 60 0

SCALE 1" = 120'

ENVIRO

MIDCO II MONITORING PO

SVE/AS AREAS OF INFL

MIDCO II SOIL VAPOR EXTRACTION/AIR SP

DESIGN/BUILD DRAWINGS

MIDCO I AND II SUPERFUND S

REV	DATE	BY	DESCRIPTION

Table 3-5a. Midco I SPLP - Metals, Cyanide, and pH Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples[b] (Dilution Factor)				STC Treated Samples[b] (Dilution Factor)			
		17 (1.30)	19 (1.45)	21 (1.29)	22 (1.36)	2 (1.33)	4 (1.33)	7 (1.22)	8 (1.18)
Metals									
Antimony (6)	3	**<39**	**<44**	**<13**	**<14**	**<40**	**<40**	**<12**	**<7.1**
Arsenic (50)	9	<39	<44	<39	<41	<40	<40	<37	<35
Barium (2,000)	<6	270	900	980 B	1,100 B	880	1100	490	210 B
Beryllium (4)	<2	<1.3	<1.4	<1.3	<1.4	<1.3	<1.3	<1.2	<1.2
Cadmium (5)	<0.2	<1/3	<1.4	<0.13	<0.14	<1.3	<1.3	<1.2	<0.12
Chromium (100)[c]	28	39	87	4.5	4.9	98	53	37	5.2
Copper (43)	**4,910**	**990**	**1100**	**850 B**	**760 B**	**740**	**660**	**480**	**380 B**
Lead (15)	9	<6.5	<7	8.2	<6.8	**29**	**48**	<6.1	<5.9
Manganese (180)	15	<7.8	<8.7	7.7	<8.2	<8.0	<8.0	<7.3	<6.6
Nickel (100)	**290**	**360**	**540**	**360 B**	**270 B**	100 J	35 J	57 J	46
Selenium (50)	10	**<100**	<7.2	6.4	<6.8	**<110**	**<110**	<6.1	<5.9
Vanadium (233)	12	<10	<12	10	<11	<11	<11	<9.8	<11
Zinc (1,150)	41	<91	<100	90	150 J	440 B	186 BJ	<85	<83
Cyanide (180)[d]	**2,350**	<26	<29	<26	<27	<27	<27	<24	142
pH of Leachate	--	11.9[e]	11.7[e]	11.9	11.8	12.1	12.2[e]	12.0[e]	11.6

a Results are from the Central Regional Laboratory, and are the average of two analyses.
b Results are from the SAIC subcontract laboratory, and represent a single analysis.
The results are the product of values presented in Table 3-5 and the dilution factor, rounded to two significant figures.
c This criterion assumes that all chromium is present as hexavalent chromium.
d This criterion assumes that cyanide is present as copper cyanide.
e Additional SPLP leachings were performed and the leachates combined to generate sufficient leachate for nonvolatile analyses. This value represents the average pH of the different leachates.
J Estimated value (less than PQL but greater than MDL)
B Contaminant present in method and/or SPLP blank at a level greater than 5 percent of the sample concentration.
Bolded values are those exceeding the SPLP criteria, or where detection limits are above the criteria.

Table 3-6a. Midco I SPLP SVOC Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples (Dilution Factor)				STC Treated Samples (Dilution Factor)			
		17[b] (1.30)	19[b] (1.45)	21[c] (1.29)	22[c] (1.36)	2[b] (1.33)	4[b] (1.33)	7[b] (1.22)	8[c] (1.18)
Acenaphthene (2,200)	5 J	7.5 J	3.2 J	2.1 J	<1.4	<1.3	<1.3	<1.2	<1.2
Benzoic Acid (1.5 E5)	235	2,000	1,000	1,300	1,100	670	2,100	460	530
Benzyl Alcohol (11,000)	26	750	440	440 J	380 J	<1.3	57	76	77
bis(2-Ethylhexyl)phthalate (6)	**70 JB**	<2.6	2.9 JB	<2.6	**61 B**	<2.7	<2.7	**21 B**	2.0 B
Butylbenzylphthalate (7,300)	6 J	<1.3	<1.4	<1.3	<1.4	<1.3	<1.3	<1.2	<1.2
Dibenzofuran (150)	4 J	6.1 J	<1.4	<1.3	<1.4	<1.3	<1.3	<1.2	<1.2
2,4-Dichlorophenol (110)	9	13	6.1 J	9.9 J	9.1 J	<1.3	2.9 J	<1.2	<1.2
Diethylphthalate (5,000)	28	<2.6	<2.9	<2.6	<2.7	<2.7	<2.7	<2.4	<2.4
2,4-Dimethylphenol (730)	33	82	32	41	34	<1.3	<1.3	<1.2	<1.2
Di-n-butylphthalate (3,700)	11	<1.3	1.9 J	<1.3	<1.4	<1.3	1.3 BJ	1.3 J	<1.2
Fluorene (1,500)	<7	5.7 J	<2.5	<2.6	<2.7	<2.7	<2.7	<2.4	<2.4
Isophorone (15)	**250**	**90**	18	**45**	**63**	<2.7	<2.7	<2.4	<2.4
2-Methylphenol (1,800)	70	85	49	52	42	<1.3	<1.3	5.7 J	<1.2
4-Methylphenol (180)	120	NA	NA	<1.3	<0.76	NA	NA	NA	<1.2
Naphthalene (20)	**42**	**130**	45	**53**	**48**	<1.3	2.0 J	1.8 J	<1.2
4-Nitrophenol (2,300)	18 J	<3.9	<4.4	<3.9	<4.0	<4.0	<4.0	<3.7	<3.5
N-Nitrosodiphenylamine (14)	4 J	**26**	13	<1.3	9.2	<2.7	<2.7	<2.4	<1.2
Pentachlorophenol (1)	**39**	**3.9 J**	**<2.9**	**<2.6**	**<2.7**	**<2.7**	**<2.7**	**<2.4**	**<2.4**
Phenol (6,000)	**8,650**	**7,800**	5,200	5,400	4,500	73	4,500	2,400	1,900
Totals	9,600+	11,000+	6,800+	7,300+	6,200+	740+	6,700+	3,000+	2,500+

a Results are from the Central Regional Laboratory, and are the average of two analyses.
b Results are from the SAIC subcontract laboratory, and represent the average of two analyses conducted on duplicate treated samples. Where an analyte was not detected in one of the two samples, the detection limit was used to calculate the average.
c Results are from the SAIC subcontract laboratory, and represent a single analysis.
J Estimated value (less than PQL but greater than the MDL).
B Contaminant present in method and/or SPLP blank at a level greater than 5 percent of the sample concentration.
NA Not analyzed.
Bolded values for individual compounds are those exceeding the SPLP criteria, or where detection limits are above the criteria.

Table 3-7. Midco I SPLP Pesticide/PCB Results (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples[b]		STC Treated Samples[b]	
		17	19	2	7
Pesticides					
alpha-Chlordane (0.52)	0.24	<0.001	0.15J	<0.001	<0.003
Dieldrin (0.2)	<0.1	**0.28 J**	<0.006	0.002	<0.006
Heptachlor (0.4)	<0.04	<0.004	<0.009	<0.004	<0.009
PCBs					
Aroclor-1232	<0.4	<0.03	<0.03	<0.03	<0.03
Totals	0.24+	0.28+	0.2+	0.002+	<0.05

Table 3-7a. Midco I SPLP Pesticide/PCB Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples[b,c] (Dilution Factor)		STC Treated Samples[b,c] (Dilution Factor)	
		17 (1.30)	19 (1.45)	2 (1.33)	7 (1.22)
Pesticides					
alpha-Chlordane (0.52)	0.24	<0.001	0.22 J	<0.001	<0.004
Dieldrin (0.2)	<0.1	**0.36 J**	<0.009	0.003	<0.007
Heptachlor (0.4)	<0.04	<0.001	<0.01	<0.005	<0.01
PCBs					
Aroclor-1232	<0.4	<0.04	<0.04	<0.04	<0.04
Totals	0.24+	0.36+	0.22+	0.003+	<0.06

a Results are from CRL and are the average of two analyses.
b Results are from the SAIC subcontractor laboratory, and represent a single analysis.
c The results are the product of values in Table 3-7 and the dilution factor rounded to two significant figures when possible.
J Estimated value (less than PQL but greater than the MDL).
Bolded values for individual compounds are those exceeding the SPLP criteria.

Table 3-8a. Midco I SPLP VOC Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples[b,c] (Dilution Factor)		STC Treated Samples[b,c] (Dilution Factor)		
		17 (1.30)	19 (1.45)	2 (1.33)	4 (1.33)	7 (1.22)
Benzene (5)	**91**	**16**	**14**	<1.3	2.1 J	**12**
Chlorobenzene (39)	20	<1.3	9.9	<1.3	<1.3	<1.2
1,1-Dichloroethane (140)	**205**	11	10	<1.3	<1.3	56
cis-1,2-Dichloroethene (70)	44	<2.6	3.8 J	<1.3	<1.3	6.3
1,2-Dichloropropane (5)	**195**	**39**	**48**	<2.6	<2.7	**37**
Ethylbenzene (700)	**2,050**	**1,100**	**1,100**	1.6 J	51	57
Methylene chloride (5)	**8,650**	**390 B**	**280 B**	**23 B**	**54 B**	**2,800 B**
Tetrachloroethene (5)	**1,550**	**770**	**640**	<1.3	**42**	**51**
Toluene (1,000)	**14,000**	**7,200**	**4,400**	2.9 J	270	600
1,1,1-Trichloroethane (200)	110	<1.3	<1.4	<1.3	1.7 J	1.6 J
Trichloroethene (5)	**895**	**170**	**140**	<1.3	**20**	**60**
1,2,4-Trimethylbenzene (3)	**355**	**310**	**290**	1.6 J	**8.4**	**7.4**
1,3,5-Trimethylbenzene (2.4)	**96**	**95**	**81**	<1.3	**2.8 J**	**2.6 J**
Vinyl chloride (2)	**9 J**	<0.31	<1.4	<1.3	<1.3	<1.2
Xylenes (total) (10,000)	**11,700**	**10,000**	6,400	13	250	230
pH of Leachate	–	12.0	11.8	11.9	12.1	12.1
Totals	40,000	20,000+	13,000+	43+	700+	3,900+

a Results are from the Central Regional Laboratory, and are the average of two analyses.
b Results are from the SAIC subcontract laboratory, and represent a single analysis. The results are the product of the values in Table 3-8 and the dilution factors and are rounded to two significant figures.
c Based on PID readings, much of the volatile loss occurred during the mixing of untreated soil and binder material prior to curing; therefore, much of the reduced concentration values for treated samples is likely due to this mixing.
J Estimated Value (less than PQL but greater than the MDL).
B Analyte found in method and/or SPLP blank.
Bolded values for individual compounds are those equal to or exceeding the SPLP criteria.

Table 3-9. Midco I Physical and Non-Specific Chemical Test Results

Parameter (Criteria and/or Units)	Untreated Soil[a]	EPA Treated Samples				STC Treated Samples			
		17	19	21	22	2	4	7	8
UCS (> 50 lbs/in^2)	--	27	160[d]	360	109	50	42	110[d]	82
Permeability (≤10^{-7} cm/sec)	--	6.0×10^{-6}	4.6×10^{-7}	2.9×10^{-7}	3.3×10^{-7}	3.2×10^{-6}	7.4×10^{-7}	2.8×10^{-7}	8.6×10^{-7}
Bulk Density (lbs/ft^3)	105[b]	104	104[d]	116	110	95	98	107[d]	111
Dry Density (lbs/ft^3)	--	74	77	92	79	72	70	86	80
Moisture Content (% dry basis)	47[c]	38	37	24	36	34	42	29	28
Wet/Dry Durability (< 10%)	--	--	--	< 1[e]	--	--	--	--	< 1[e]
Freeze/Thaw Durability (< 10%)	--	--	--	< 1[e]	--	--	--	--	13[e]
Volume Expansion (%)	--	--	--	+21	+40	--	--	--	+2
Bulk Specific Gravity	1.7[b]	--	--	--	--	--	--	--	--
Loss on Ignition (% Wet Basis)	8[b]	--	--	--	--	--	--	--	--
Grain Size Analysis[d] (%)									
Gravel	3.2	--	--	--	--	--	--	--	--
Sand	73	--	--	--	--	--	--	--	--
Silt	16	--	--	--	--	--	--	--	--
Clay	7.2	--	--	--	--	--	--	--	--
Total Organic Carbon, (mg/kg dry weight)	20,900	--	--	--	--	--	--	--	--
Oil and Grease, (mg/kg wet weight)	28,420	--	--	--	--	--	--	--	--

[a] From Reference 7.
[b] Results are the average of triplicate determinations.
-- Not measured.
[c] Results are the average of duplicate samples, in which each sample was analyzed in triplicate.
[d] Value is the average of duplicate samples.
[e] Value is the mass loss relative to the control specimen.

Table 4-4a. Midco II SPLP - Metals, Cyanide, and pH Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples[b] (Dilution Factor)			STC Treated Samples[b] (Dilution Factor)		
		1 (1.16)	2 (1.16)	3 (1.26)	1 (1.18)	2 (1.33)	3 (1.18)
Metals							
Antimony (6)	<2	**<35**	**<12**	**<13**	**<35**	**<13**	**<7.1**
Arsenic (50)	<2	<35	<35	<38	<35	<40	<35
Barium (2,000)	55	230	390 B	380 B	330	370 B	170 B
Beryllium (4)	<2	<1.2	<1.2	<1.3	<1.2	<1.3	<1.2
Cadmium (5)	0.3	<1.2	<1.2	<0.13	<1.2	<1.3	<0.12
Chromium (100)[c]	<10	**220**	35	5.9	**100**	66	5.1
Copper (43)	8	**1,000**	**340**	**400 B**	**130**	**62 J**	**52 JB**
Lead (15)	2	5.8	<5.8	<6.3	<5.9	<6.6	<5.9
Manganese (180)	**302**	<7.0	<7.0	<7.6	<7.1	<8.3	<7.1
Nickel (100)	47	**120**	**140**	**150**	<35	<40	<35
Selenium (50)	<2	**<93**	<5.8	<6.3	**<94**	<6.6	<5.9
Vanadium (233)	<8	<9.3	9.3 J	<10	<9.4	<11	<9.4
Zinc (1,150)	<40	200	<81	<83	260 B	<93	<83
Cyanide (180)[d]	<8	<23	<23	<24	<24	<27	<24
pH of Leachate	--	11.8[e]	11.7[e]	11.5	11.8[e]	12.0[e]	11.6

a Results are from the Central Regional Laboratory, and are the average of two analyses.
b Results are from the SAIC subcontract laboratory, and represent a single analysis. Results are products of the values in Table 4-4 and the dilution factors and are presented in two signficant figures.
c This criterion assumes that all chromium is present as hexavalent chromium.
d This criterion assumes that cyanide is present as copper cyanide.
e Additional SPLP leachings were performed and the leachates combined to generate sufficient leachate for nonvolatile analyses. This value represents the average pH of the different leachates.
J Estimated value (less than PQL but greater than MDL)
B Contaminant present in method and/or SPLP blank at a level greater than 5 percent of the sample concentration.
Bolded values are those equal to or exceeding the SPLP criteria, or where detection limits are above the criteria.

Table 4-5a. Midco II SPLP SVOC Results (Adjusted for Dilution Factors) (μg/L)

Parameter (SPLP Criteria in μg/L)	Untreated Soil[a]	EPA Treated Samples (Dilution Factor)			STC Treated Samples (Dilution Factor)		
		1[c] (1.16)	2[b] (1.16)	3[c] (1.26)	1[c] (1.18)	2[b] (1.33)	3[c] (1.18)
Acenaphthene (2,200)	5 J	3.0 J	<1.2	<1.3	<1.2	<1.3	<1.2
Benzoic Acid (1.5 E5)	<27	500	100	160	45	4.0 J	<1.2
Benzyl Alcohol (11,000)	<7	<1.2	3.5 J	<1.3	<1.2	<1.3	<1.2
bis(2-Ethylhexyl)phthalate (6)	**13 B**	**15 B**	**26 B**	<2.5	**24**	**21 B**	<2.4
Butylbenzylphthalate (7,300)	<7	<1.2	2.3 J	<1.3	<1.2	<1.3	<1.2
Dibenzofuran (150)	<7	1.4 J	<1.2	<1.3	<1.2	<1.3	<1.2
2,4-Dichlorophenol (110)	<7	<1.2	<1.2	<1.3	<1.2	<1.3	<1.2
Diethylphthalate (5,000)	<7	<2.3	<2.3	<2.5	<2.4	<2.7	<2.4
2,4-Dimethylphenol (730)	<7	<1.2	<1.2	<1.3	<1.2	<1.3	<1.2
Di-n-butylphthalate (3,700)	<7	<1.2	2.3 J	<1.3	1.3 BJ	1.3 J	<1.2
Fluorene (1,500)	5 J	3.0 J	<2.3	<2.5	<2.4	<2.7	<2.4
Isophorone (15)	<7	<2.3	1.2 J	<2.5	<2.4	<2.7	<2.4
2-Methylphenol (180)	<7	<1.2	<1.2	<1.3	<1.2	<1.3	<1.2
Naphthalene (20)	<7	13	<1.2	<1.3	1.2	<1.3	<1.2
4-Nitrophenol (2,300)	<27	<3.5	<3.5	<3.8	<3.5	<4.0	<3.5
N-Nitrosodiphenylamine (14)	<7	3.9 J	<2.3	<2.5	<2.4	<2.7	<2.4
Pentachlorophenol (1)	**<27**	**<2.3**	**<2.3**	**<2.5**	**<2.4**	**<2.7**	**2.4**
Phenol (6,000)	<7	67	31	23	0.90 J	20	<0.24
Totals	20+	610+	170+	180+	72+	46+	<24

[a] Results are from the Central Regional Laboratory, and are the average of two analyses.

[b] Results are from the SAIC subcontract laboratory, and represent the average of two analyses conducted on duplicate treated samples following a 28-day cure. Where an analyte was not detected in one of the two samples, the detection limit was used to calculate the average. Results are the product of values in Table 4-5 and the dilution factor and are presented in two significant figures.

[c] Results are from the SAIC subcontract laboratory, and represent a single analysis. Results are the product of values in Table 4-5 and the dilution factor and are presented in two significant figures.

J Estimated value (less than PQL but greater than the MDL).

B Contaminant present in method and/or SPLP blank at a level greater than 5 percent of the sample concentration.

Bolded values for individual compounds indicate where the detection limit exceeds the criteria.

Table 4-6. Midco II Physical and Non-Specific Chemical Test Results

Parameter (Criteria and/or Units)	Untreated Soil[a]	EPA Treated Samples			STC Treated Samples		
		1	2	3	1	2	3
UCS (>50 lbs/in^2)	--	**9**	280[d]	190	**9**	94[d]	236[d]
Permeability ($\leq 10^{-7}$ cm/sec)	--	**8.4×10^{-6}**	**2.6×10^{-6}**	**2.3×10^{-5}**	**3.7×10^{-5}**	**3.6×10^{-6}**	2.6×10^{-7}
Bulk Density (lbs/ft^3)	104[b]	100	107[d]	111	97	107[d]	110[d]
Dry Density (lbs/ft^3)	--	75	92	88	71	84	83
Moisture Content (% dry basis)	23[c]	34	21	20	36	26	26
Wet/Dry Durability ($<10\%$)	--	--	--	<1[e]	--	--	<1[e]
Freeze/Thaw Durability ($<10\%$)	--	--	--	<1[e]	--	--	<1[e]
Volume Expansion (%)	--	--	--	+29	--	--	+41
Bulk Specific Gravity	1.7[b]	--	--	--	--	--	--
Loss on Ignition (% Wet Basis)	7	--	--	--	--	--	--
Grain Size Analysis[d] (%)							
Gravel	3.4	--	--	--	--	--	--
Sand	76	--	--	--	--	--	--
Silt	15	--	--	--	--	--	--
Clay	6.0	--	--	--	--	--	--
Total Organic Carbon, (mg/kg dry weight)	8,860	--	--	--	--	--	--
Oil and Grease, (mg/kg wet weight)	6,760	--	--	--	--	--	--

a From Reference 7.
b Results are the average of triplicate determinations.
-- Not measured.
Bolded values are those not meeting the critieria.
c Results are the average of duplicate samples, in which each sample was analyzed in triplicate.
d Value is the average of duplicate samples.
e Value is the mass loss relative to the control specimen.

Table D-1. CRL SPLP Metals and Cyanide Results for Target Analytes (μg/L)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
Metals						
Aluminum	314	800	480	<80	10,700	15,600
Antimony (6)	3	<1	<1	<2	2	2
Arsenic (50)	9	<2	<2	<2	<2	<2
Barium (2,000)	<6	720	160	55	280	120
Beryllium (4)	<2	<1	<1	<2	<1	<1
Cadmium (5)	<0.2	<0.2	<0.2	0.3	<0.2	<0.2
Chromium (100)[b]	28	31	32	<10	40	44
Copper (43)	**4,910**	**630**	**289**	8	**240**	30
Lead (15)	9	**18**	7	2	6	3
Manganese (180)	15	<5	<5	**302**	<5	<5
Mercury	<0.1	--	--	<0.1	--	--
Nickel (100)	**290**	**320**	26	47	84	<20
Selenium (50)	10	<4	<7	<2	<2	<4
Silver	<6	<6	<6	<6	<2	<6
Thallium	<2	--	--	<2	--	--
Vanadium (233)	12	<5	<5	<8	<5	<7
Zinc (1,150)	41	<20	<20	<40	<20	<20
Cyanide (180)[c]	**2,350**	<8	12	<8	<8	<8
pH of Leachate	--	--	--	--	--	--

a Results are the average of two analyses.
b This criteria assumes that all chromium is present as hexavalent chromium.
c This criteria assumes that cyanide is present as copper cyanide.
-- Not reported
Bolded values are those exceeding the SPLP criteria.

Table D-2. CRL Total Metals and Cyanide Results for Target Analytes (mg/kg)

Parameter	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
Metals						
Aluminum	13,500	18,000	13,000	28,000	34,000	29,000
Antimony	0.6	<1.6	<0.8	1.8	<0.9	1.1
Arsenic	5	6	7.4	8	8	9.9
Barium	660	760	620	81	310	150
Beryllium	2	2	2	2	2.5	3
Cadmium	2	1.9	1.9	3	4	5.8
Chromium	1,300	1,100	1,200	290	280	320
Copper	5,200	4,500	5,300	665	690	780
Lead	430	370	410	195	200	270
Manganese	340	440	330	425	540	490
Mercury	<0.04	0.19	0.20	<0.04	0.21	0.18
Nickel	1,400	1,100	1,300	590	570	610
Selenium	1	<1.2	1.3	<1.2	<1	1.5
Silver	2	<1	<1	<1	<1	<1
Thallium	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vanadium	26	41	32	26	44	37
Zinc	1,550	1,400	1,500	650	740	770
Cyanide	520	--	--	354	--	--

a Results are the average of two analyses
-- Not reported

Table D-3. CRL SPLP SVOC Results for Target Analytes (μg/L)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples[b]	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
Acenaphthene (2,200)	5J	<5	<5	5 J	<5	<5
Acenaphthylene	<7	<5	<5	<7	<5	<5
Anthracene	<7	<5	<5	<7	<5	<5
Benzo(a)anthracene	<7	<5	<5	<7	<5	<5
Benzo(b)fluoranthene	<7	<5	<5	<7	<5	<5
Benzo(k)fluoranthene	<7	<5	<5	<7	<5	<5
Benzoic Acid (1.5 E5)	235	3,300	1,160	<27	360	<10
Benzo(g,h,i)perylene	<7	<5	<5	<7	<5	<5
Benzo(a)pyrene	<7	<5	<5	<7	<5	<5
Benzyl Alcohol (11,000)	26	490	<5	<7	<5	<5
bis(2-Chloroethoxy)methane	<7	<5	<5	<7	<5	<5
bis(2-Chloroethyl)ether	<7	<5	<5	<7	<5	<5
bis(2-Chloroisopropyl)ether	<7	<5	<5	<7	<5	<5
bis(2-Ethylhexyl)phthalate (6)	**70 JB**	**130**	**25 B**	**13 B**	**140 B**	**22 BJ**
4-Bromophenyl-phenylether	<7	<5	<5	<7	<5	<5
Butylbenzylphthalate (7,300)	6J	<5	<5	<7	<5	<5
Carbazole	5J	<5	<5	<7	<5	<5
4-Chloroaniline	<7	<5	<5	<7	<5	<5
4-Chloro-3-methylphenol	<7	<5	<5	<7	<5	<5
2-Chloronaphthalene	<7	<5	<5	<7	<5	<5
2-Chlorophenol	<7	<5	<5	<7	<5	<5
4-Chlorophenyl-phenylether	<7	<5	<5	<7	<5	<5
Chrysene	<7	<5	<5	<7	<5	<5
Dibenz(a,h)anthracene	<7	<5	<5	<7	<5	<5
Dibenzofuran (150)	4J	<5	<5	<7	<5	<5
1,2-Dichlorobenzene	<7	<5	<5	<7	<5	<5
1,3-Dichlorobenzene	<7	<5	<5	<7	<5	<5

Table D-3. CRL SPLP SVOC Results for Target Analytes (µg/L) (cont.)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples[b]	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
1,4-Dichlorobenzene	<7	<5	<5	<7	<5	<5
3,3-Dichlorobenzidine	<7	<5	<5	<7	<5	<5
2,4-Dichlorophenol (110)	9	11 J	<5	<7	<5	<5
Diethylphthalate (5,000)	28	<5	<5	<7	<5	<5
2,4-Dimethylphenol (730)	33	42	<5	<7	<5	<5
Dimethylphthalate	<7	<5	<5	<7	<5	<5
Di-n-butylphthalate (3,700)	11	<5	<5	<7	<5	<5
Di-n-octylphthalate	<7	<5	<5	<7	<5	<5
4,6-Dinitro-2-methylphenol	<7	<20	<20	<7	<20	<20
2,4-Dinitrophenol	<27	<20	<20	27 J	<20	<20
2,4-Dinitrotoluene	<7	<5	<5	<27	<5	<5
2,6-Dinitrotoluene	<7	<5	<5	<7	<5	<5
Fluoranthene	<7	<5	<5	<7	<5	<5
Fluorene (1,500)	<7	<5	<5	5 J	<5	<5
Hexachlorobenzene	<7	<5	<5	<7	<5	<5
Hexachlorobutadiene	<7	<5	<5	<7	<5	<5
Hexachlorocyclopentadiene	<7	<5	<5	<7	<5	<5
Hexachloroethane	<7	<5	<5	<7	<5	<5
Indeno(1,2,3-cd)pyrene	<7	<5	<5	<7	<5	<5
Isophorone (15)	250	<5	<5	<7	<5	<5
2-Methylnaphthalene	7	5	<5	<7	<5	<5
2-Methylphenol (1,800)	70	44	45	<7	<5	<5
4-Methylphenol (180)	120	260	<28	--	<5	<5
Naphthalene (20)	42	27	<5	<7	<5	<5
2-Nitroaniline	<27	<20	<20	<27	<20	<20
3-Nitroaniline	<27	<20	<20	<27	<20	<20
4-Nitroaniline	<7	<20	<20	<7	<20	<20

Table D-3. CRL SPLP SVOC Results for Target Analytes (µg/L) (cont.)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples[b]	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
Nitrobenzene	<7	<5	<5	<7	<5	<5
2-Nitrophenol	<7	<5	<5	<7	<5	<5
4-Nitrophenol (2,300)	18 J	<5	<5	<27	<5	<5
N-Nitrosodiphenylamine (14)	4J	<5	<5	<7	<5	<5
N-Nitroso-di-n-propylamine	<7	<5	<5	<7	<5	<5
Pentachlorophenol (1)	39	**4 J**	**<20**	**<27**	**<20**	**<20**
Phenanthrene	<7	<3	<5	<7	<5	<5
Phenol (6,000)	**8,650**	**8,700**	4,600	<7	37 J	<5
Pyrene	<7	<5	<5	<7	<5	<5
2,3,4,6-Tetrachlorophenol	--	--	--	--	--	--
1,2,4-Trichlorobenzene	<7	<5	<5	<7	<5	<5
2,4,5-Trichlorophenol	<27	<20	<20	<27	<20	<20
2,4,6-Trichlorophenol	<7	<5	<5	<7	<5	<5

a Results are the average of two analyses.
J Estimated Value (less than PQL but greater than the MDL).
B Analyte found in method and/or SPLP blank.
-- Not reported
Bolded values for individual compounds are those exceeding the SPLP criteria, or where detection limits are above the criteria.

Table D-4. CRL Total SVOC Results for Target Analytes (µg/kg)

Parameter	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
Acenaphthene	2,850	<27,000	<24,000	1,650	<22,000	<24,000
Acenaphthylene	<720	<27,000	<24,000	610 J	<22,000	<24,000
Anthracene	8,000	7,600 J ~~<9 J~~ *	<24,000	3,300	<22,000	<24,000
Benzo(a)anthracene	4,500	22,000 J ~~<27~~ *	<24,000	6,300	<22,000	<24,000
Benzo(b)fluoranthene	5,450	<31,000 ~~<31~~ *	<24,000	1,500	<22,000	<24,000
Benzo(k)fluoranthene	1,600 J	<27,000 ~~<27~~ *	<24,000	1,700	<22,000	<24,000
Benzoic Acid	<2,900	9,000 J	12,000 J	<2,500	<110,000	<120,000
Benzo(g,h,i)perylene	870	12,000 J ~~<22,000~~ *	<24,000	2,070	<22,000	<24,000
Benzo(a)pyrene	3,750	16,000 J ~~<24,000~~ *	<24,000	3,850	<22,000	<24,000
Benzyl Alcohol	<720	13,000 J ~~<13,000 J~~ *	14,000 J	<620	<22,000	<24,000
bis(2-Chloroethoxy)methane	<720	<27,000	<24,000	<620	<22,000	<24,000
bis(2-Chloroethyl)ether	<720	<27,000	<24,000	<620	<22,000	<24,000
bis(2-Chloroisopropyl)ether	<720	<27,000	<24,000	<620	<22,000	<24,000
bis(2-Ethylhexyl)phthalate	135,000 B	830,000 B	580,000 B	11,000 B	140,000 B	360,000 B
4-Bromophenyl-phenylether	<720	<27,000	<24,000	<620	<22,000	<24,000
Butylbenzylphthalate	68,500	12,000 J ~~<22,000~~ *	14,000 J	360 J	<22,000	<24,000
Carbazole	2,700	<27,000	<24,000	<620	<22,000	<24,000
4-Chloroaniline	<720	<27,000	<24,000	<620	<22,000	<24,000
4-Chloro-3-methylphenol	<720	<27,000	<24,000	<620	<22,000	<24,000
2-Chloronaphthalene	<720	<27,000	<24,000	<620	<22,000	<24,000
2-Chlorophenol	<720	<27,000	<24,000	<620	<22,000	<24,000
4-Chlorophenyl-phenylether	<720	<27,000	<24,000	<620	<22,000	<24,000
Chrysene	5,350 J	24,000 ~~<28,000~~ *	<24,000	12,800	<22,000	<24,000
Dibenz(a,h)anthracene	<720	<27,000	<24,000	860	<22,000	<24,000
Dibenzofuran	6,400	<27,000	<24,000	<1,080	<22,000	<24,000
1,2-Dichlorobenzene	<720	<27,000	<24,000	<620	<22,000	<24,000
1,3-Dichlorobenzene	<720	<27,000	<24,000	<620	<22,000	<24,000

Table D-4. CRL Total SVOC Results for Target Analytes (µg/kg) (cont.)

Parameter	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
1,4-Dichlorobenzene	<720	<27,000	<24,000	<620	<22,000	<24,000
3,3-Dichlorobenzidine	<720	<27,000	<24,000	<620	<22,000	<24,000
2,4-Dichlorophenol	<720	<27,000	<24,000	<620	<22,000	<24,000
Diethylphthalate	2,050	<27,000	<24,000	<620	<22,000	<24,000
2,4-Dimethylphenol	<720	<27,000	<24,000	<620	<22,000	<24,000
Dimethylphthalate	<720	<27,000	<24,000	< 620	<22,000	<24,000
Di-n-butylphthalate	25,000	8,800 JB	11,000 JB	405 J	<22,000	<24,000
Di-n-octylphthalate	680 J	19,000 J	13,000 J ~~<19,000~~ *	2,250	[illegible] J ~~<22,000~~ *	[illegible] J ~~<24,000~~ *
4,6-Dinitro-2-methylphenol	<2,900	<140,000	<120,000	<2,500	<110,000	<120,000
2,4-Dinitrophenol	<720	<140,000	<120,000	<2,500	<110,000	<120,000
2,4-Dinitrotoluene	<720	<27,000	<24,000	<620	<22,000	<24,000
2,6-Dinitrotoluene	<720	<27,000	<24,000	<620	<22,000	<24,000
Fluoranthene	17,000	32,000 J	14,000 J	13,000	<22,000	<24,000
Fluorene	6,700	<27,000	<24,000	2,300	<22,000	<24,000
Hexachlorobenzene	<720	<27,000	<24,000	<620	<22,000	<24,000
Hexachlorobutadiene	<720	<27,000	<24,000	<620	<22,000	<24,000
Hexachlorocyclopentadiene	<720	<27,000	<24,000	<620	<22,000	<24,000
Hexachloroethane	<720	<27,000	<24,000	<620	<22,000	<24,000
Indeno(1,2,3-cd)pyrene	1,450	11,000 J ~~<21,000 J~~ *	<24,000	3,130	<22,000	<24,000
Isophorone	7,900	<27,000	<24,000	690	<22,000	<24,000
2-Methylnaphthalene	10,500	14,000 J	14,000 J	<620	<22,000	<24,000
2-Methylphenol	1,350	<27,000	<24,000	<620	<22,000	<24,000
4-Methylphenol	2,650	<27,000	<24,00	--	<22,000	<24,000
Naphthalene	14,500	22,000 J	22,000 J	1,800	<22,000	<24,000
2-Nitroaniline	<2,900	<140,000	<120,000	<2,500	<110,000	<120,000
3-Nitroaniline	<2,900	<140,000	<120,000	<2,500	<110,000	<120,000
4-Nitroaniline	<2,900	<140,000	<120,000	<2,500	<110,000	<120,000

Table D-4. CRL Total SVOC Results for Target Analytes (μg/kg) (cont.)

Parameter	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
Nitrobenzene	<720	<27,000	<24,000	<620	<22,000	<24,000
2-Nitrophenol	<720	<27,000	<24,000	<620	<22,000	<24,000
4-Nitrophenol	<2,900	<140,000	<120,000	<2,500	<110,000	<120,000
N-Nitrosodiphenylamine	9,850	6,800J ~~<19,000 J~~ *	<24,000	<620	<22,000	<24,000
N-Nitroso-di-n-propylamine	<720	<27,000	<24,000	<620	<22,000	<24,000
Pentachlorophenol	1,935 J	<140,000	<120,000	<2,500	<110,000	<120,000
Phenanthrene	17,000	33,000 J	19,000 J	10,500	<22,000	<24,000
Phenol	160,000	150,000	120,000	<620	<22,000	<24,000
Pyrene	14,500	25,000 J	10,000 J	16,400	<22,000	<24,000
2,3,4,6-Tetrachlorophenol	--	--	--	--	--	--
1,2,4-Trichlorobenzene	720	<27,000	<24,000	<620	<22,000	<24,000
2,4,5-Trichlorophenol	<2,900	<140,000	<60,000	<2,500	<110,000	<120,000
2,4,6-Trichlorophenol	<720	<27,000	<60,000	<620	<22,000	<24,000

a Results are the average of two analyses.
J Estimated value (less than PQL but greater than the MDL).
B Analyte found in method blank.
-- Not reported.

* Corrected by Richard [illegible] from lab sheets on 9/14/04. If the compound was detected in one duplicate, but not the other, the detection is identified.
KEB

[illegible] Results for Target Analytes (µg/L)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
Pesticides						
Aldrin	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
alpha-BHC	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
beta-BHC	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
delta-BHC	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
gamma-BHC (Lindane)	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
alpha-Chlordane (0.52)	0.24	<0.04	<0.02	<0.02	<0.02	<0.02
gamma-Chlordane	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
4,4'-DDD	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Dieldrin (0.2)	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Endosulfan I	<0.1	<0.04	<0.02	<0.02	<0.02	<0.02
Endosulfan II	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Endrin	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Endrin Ketone	0.67	<0.1	<0.05	<0.05	<0.05	<0.05
Heptachlor (0.4)	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
Heptachlor epoxide	<0.04	<0.04	<0.02	<0.02	<0.02	<0.02
Methoxychlor	<0.4	<0.4	<0.2	<0.2	<0.2	<0.2
Toxaphene	<2	<2	<1	<1	<1	<1

Table D-5. CRL SPLP Pesticide/PCB Results for Target Analytes (μg/L) (cont.)

Parameter (SPLP Criteria)	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
PCBs						
Aroclor-1016	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1221	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1232	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1242	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1248	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1254	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor-1260	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2

a Results are the average of two analyses.

Table D-6. CRL Total Pesticide/PCB Results for Target Analytes (mg/kg)

Parameter	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
Pesticides						
Aldrin	1.6	0.89	0.78	0.09	<0.012	<0.014
alpha-BHC	<0.3	<0.14	<0.14	<0.03	<0.012	<0.014
beta-BHC	0.82	<0.14	<0.14	<0.04	<0.012	<0.014
delta-BHC	<0.3	<0.14	<0.14	<0.03	<0.012	<0.014
gamma-BHC (Lindane)	<0.3	<0.14	<0.14	<0.4	<0.012	<0.014
alpha-Chlordane	0.85	0.34	<0.14	<0.03	<0.012	<0.014
gamma-Chlordane	0.94	<0.14	0.22	<0.07	<0.012	<0.014
4,4'-DDD	<0.7	<0.24	<0.22	<0.06	<0.02	<0.022
4,4'-DDE	<0.7	<0.24	<0.22	0.08	<0.02	<0.022
4,4'-DDT	<0.7	<0.24	<0.22	<0.06	<0.02	<0.022
Dieldrin	4.45	1.2	1.1	<0.08	<0.02	<0.022
Endosulfan I	<0.3	<0.14	<0.14	<0.03	<0.012	<0.014
Endosulfan II	<0.7	<0.24	<0.22	0.17	<0.02	<0.022
Endosulfan sulfate	<0.7	<0.24	<0.22	<0.006	<0.02	<0.022
Endrin	6.9	1.9	2.2	<0.06	<0.02	<0.022
Endrin aldehyde	<0.7	<0.24	<0.22	<0.06	<0.02	<0.022
Endrin Ketone	<0.7	<0.24	<0.22	<0.06	<0.02	<0.022
Heptachlor	0.38	<0.14	<0.14	<0.03	<0.012	<0.014
Heptachlor epoxide	<0.3	<0.14	<0.14	<0.03	<0.012	<0.014
Methoxychlor	3.5	<1	<0.8	<0.3	<0.08	<0.08
Toxaphene	<10	<0.4	<0.4	<1	<0.04	<0.04

Table D-6. CRL Total Pesticide/PCB Results for Target Analytes (mg/kg) (cont.)

Parameter	Midco I[a]			Midco II[a]		
		Treated Samples			Treated Samples	
	Untreated Soil	EPA 21	STC 8	Untreated Soil	EPA 3	STC 3
PCBs						
Aroclor-1016	<14	<0.02	<0.02	<1.9	<0.02	<0.02
Aroclor-1221	<14	<0.02	<0.02	<1.2	<0.02	<0.02
Aroclor-1232	36.9	<0.02	<0.02	<1.2	<0.02	<0.02
Aroclor-1242	<14	2.9	3.2	<1.2	<0.02	0.84
Aroclor-1248	<14	<0.02	<0.02	<2	<0.02	<0.02
Aroclor-1254	<14	<2.4	12	<1.2	0.41	0.52
Aroclor-1260	<14	<0.02	<0.02	<1.2	<0.02	<0.02

a Results are the average of two analyses.

Table D-7. CRL SPLP VOC Results for Target Analytes ($\mu g/L$)

Parameter (SPLP Criteria)	Midco I[a] Untreated Soil	Midco I[a] Treated Samples EPA 21	Midco I[a] Treated Samples STC 8	Midco II[a] Untreated Soil	Midco II[a] Treated Samples EPA 3	Midco II[a] Treated Samples STC 3
Benzene (5)	**91**	< 28	**7 J**	< 2	< 5	< 5
Bromobenzene	< 10	< 28	< 5	< 2	< 5	< 5
Bromochloromethane	< 10	< 28	< 5	< 2	< 5	< 5
Bromodichloromethane	< 10	< 28	< 5	< 2	< 5	< 5
Bromoform	< 10	< 28	< 5	< 2	< 5	< 5
Bromomethane	< 15	< 55	< 10	< 3 J	< 10	< 10
n-Butylbenzene	< 10	< 28	< 5	< 2	< 5	< 5
sec-Butylbenzene	7 J	< 28	< 5	< 2	< 5	< 5
tert-Butylbenzene	< 10	< 39	< 5	< 2	< 5	< 5
Carbon tetrachloride	< 10	< 28	< 5	< 2	< 5	< 5
Chlorobenzene (39)	20	< 29	< 5	< 2	< 5	< 5
Chloroethane	< 15	< 55	< 10	< 3	< 10	< 10
Chloroform	< 10	< 28	< 5	< 2	< 5	< 5
Chloromethane	< 15	< 55	< 10	< 3	< 10	< 10
2-Chlorotoluene	< 10	< 28	< 5	< 2	< 5	< 5
4-Chlorotoluene	< 10	< 28	< 5	< 2	< 5	< 5
Dibromochloromethane	< 10	< 28	< 5	< 2	< 5	< 5
1,2-Dibromo-3-chloropropane	< 10	< 28	< 5	< 2	< 5	< 5
1,2-Dibromoethane	< 10	< 28	< 5	< 2	< 5	< 5
Dibromomethane	< 10	< 28	< 5	< 2	< 5	< 5
1,2-Dichlorobenzene	< 10	< 28	< 5	< 2	< 5	< 5
1,3-Dichlorobenzene	< 10	< 28	< 5	< 2	< 5	< 5
1,4-Dichlorobenzene	< 10	< 28	< 5	< 2	< 5	< 5
Dichlorodifluoromethane	< 15	--	--	< 3	--	--
1,1-Dichloroethane (140)	**205**	< 27	23	< 2	< 5	< 5
1,2-Dichloroethane	< 10	< 28	< 5	< 2	< 5	< 5
1,1-Dichloroethene	< 10	< 28	< 5	< 2	< 5	< 5
cis-1,2-Dichloroethene (70)	44	< 28	< 4 J	< 2	< 5	< 5
trans-1,2-Dichloroethene	< 10	< 28	< 5	< 2	< 5	< 5
1,2-Dichloropropane (5)	**195**	**24 J**	**24**	< 2	< 5	< 5
1,3-Dichloropropane	< 10	< 28	< 5	< 2	< 5	< 5

Table D-7. CRL SPLP VOC Results for Target Analytes ($\mu g/L$) (cont.)

Parameter (SPLP Criteria)	Midco I[a] Untreated Soil	Midco I[a] Treated Samples EPA 21	Midco I[a] Treated Samples STC 8	Midco II[a] Untreated Soil	Midco II[a] Treated Samples EPA 3	Midco II[a] Treated Samples STC 3
2,2-Dichloropropane	< 10	< 28	< 5	< 2	< 5	< 5
1,1-Dichloropropene	< 10	< 28	< 5	< 2	< 5	< 5
Ethylbenzene (700)	**2,050**	**750 J**	33	< 2	< 5	< 5
Hexachlorobutadiene	< 10	< 28	< 5	< 2	< 5	< 5
Isopropylbenzene	46	25 J	< 5	< 2	< 5	< 5
p-Isopropyltoluene	8 J	< 28 J	< 5	< 2	< 5	< 5
Methylene chloride (5)	**8,650**	**120**	**850 E**	2 J	**14 J**	**5**
n-Propylbenzene	52	27	< 5	< 2	< 5	< 5
Styrene	< 10	53 J	< 5	< 2	< 5	< 5
1,1,1,2-Tetrachloroethane	< 10	< 28	< 5	< 2	< 5	< 5
1,1,2,2-Tetrachloroethane	< 10	< 28	< 5	< 2	< 5	< 5
Tetrachloroethene (5)	**1,550**	**410 J**	**38**	1 J	< 5 J	**5 J**
Toluene (1,000)	**14,000**	**2,800 E**	260	2	9	< 7
1,2,3-Trichlorobenzene	< 10	< 28	< 5	< 2	< 5	< 5
1,2,4-Trichlorobenzene	< 10	< 28	< 5	< 2	< 5	< 5
1,1,1-Trichloroethane (200)	110	< 28	< 5	< 2	< 5	< 5
1,1,2-Trichloroethane	< 10	< 28	< 5	< 2	< 5	< 5
Trichloroethene (5)	**895**	**85 J**	**39**	< 2	< 5	< 5
Trichlorofluoromethane	< 15	--	--	< 3	--	--
1,2,3-Trichloropropane	< 10	< 28	< 5	< 2	< 5	< 5
1,2,4-Trimethylbenzene (3)	**355**	**150 J**	**5 J**	2 JB	< 5	< 5
1,3,5-Trimethylbenzene (2.4)	**96**	**54 J**	< 5	11	< 5	< 5
Vinyl chloride (2)	**9 J**	< 55	< 10	< 3	< 10	< 10
Xylenes (total) (10,000)	**11,700**	4,400 J	150	4 J	26 J	< 21
pH of Leachate	--	--	--	--	--	--

a Results are the average of two analyses.
J Estimated Value (less than PQL but greater than the MDL).
B Contaminant present in method and/or SPLP blank.
E Estimated value. Sample concentration above calibration range.
Bolded values for individual compounds are those at or exceeding the SPLP criteria.
-- Not reported.

Table D-8. CRL Total VOC Results for Target Analytes (µg/kg)

Parameter	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
Benzene	1,060	< 180 J	< 250	< 120	< 250	< 250
Bromobenzene	< 140	< 250	< 250	< 120	< 250	< 250
Bromochloromethane	< 140	< 250	< 250	< 120	< 250	< 250
Bromodichloromethane	< 140	< 250	< 250	< 120	< 250	< 250
Bromoform	< 140	< 250	< 250	< 120	< 250	< 250
Bromomethane	< 210	< 500	< 500	< 180 J	< 500	< 500
n-Butylbenzene	< 140	2,100	< 230	< 120	< 250	< 250
sec-Butylbenzene	1,450	810	< 230 J	< 120	< 250	< 250
tert-Butylbenzene	< 140	< 250	< 250	< 120	< 250	< 250
Carbon tetrachloride	< 140	< 250	< 250	< 120	< 250	< 250
Chlorobenzene	495	200 J	< 250	< 120	< 250	< 250
Chloroethane	< 210	< 500	< 500	< 180	< 500	< 500
Chloroform	< 140	< 250	< 250	< 120	< 250	< 250
Chloromethane	< 210	< 500	< 500	< 180	< 500	< 500
2-Chlorotoluene	< 140	< 250	< 250	< 120	< 250	< 250
4-Chlorotoluene	< 140	< 250	< 250	< 120	< 250	< 250
Dibromochloromethane	< 140	< 250	< 250	< 120	< 250	< 250
1,2-Dibromo-3-chloropropane	< 140	< 1,200	< 1,200	< 120	< 1,200	< 1,200
1,2-Dibromoethane	< 140	< 250	< 250	< 120	< 250	< 250
Dibromomethane	< 140	< 250	< 250	< 120	< 250	< 250
1,2-Dichlorobenzene	< 140	< 250	< 250	< 120	< 250	< 250
1,3-Dichlorobenzene	< 140	< 250	< 250	< 120	< 250	< 250
1,4-Dichlorobenzene	< 140	< 250	< 250	< 120	< 250	< 250
Dichlorodifluoromethane	< 210	--	--	< 180	--	--
1,1-Dichloroethane	2,100	< 250	< 190 J	< 120	< 250	< 250
1,2-Dichloroethane	< 140	< 250	< 190 J	< 120	< 250	< 250
1,1-Dichloroethene	< 140	< 250	< 190 J	< 120	< 250	< 250
cis-1,2-Dichloroethene	485	< 250	< 190 J	< 120	< 250	< 250
trans-1,2-Dichloroethene	< 140	< 250	< 190 J	< 120	< 250	< 250
1,2-Dichloropropane	1,900	280	< 240 J	< 120	< 250	< 250

Table D-8. CRL Total VOC Results for Target Analytes (μg/kg) (cont.)

Parameter	Midco I[a]			Midco II[a]		
	Untreated Soil	Treated Samples		Untreated Soil	Treated Samples	
		EPA 21	STC 8		EPA 3	STC 3
1,3-Dichloropropane	<140	<250	<250	<120	<250	<250
2,2-Dichloropropane	<140	<250	<250	<120	<250	<250
1,1-Dichloropropene	<140	<250	<250	<120	<250	<250
Ethylbenzene	86,000	25,000	3,600	360	<250	<250
Hexachlorobutadiene	<140	<250	<250	<120	<250	<250
Isopropylbenzene	5,050	1,700	<300	<120	<250	<250
p-Isopropyltoluene	1,850	200	<220 J	<120	<250	<250
Methylene chloride	108,000	940	2,900	<120 J	<250	150 J
n-Propylbenzene	5,550	2,700	300 J	<93 J	<250	<250
Styrene	<140	1,300	220 J	<120	<250	<250
1,1,1,2-Tetrachloroethane	<140	<250	<250	<120	<250	<250
1,1,2,2-Tetrachloroethane	<140	<250	<250	<120	<250	<250
Tetrachloroethene	77,000	18,000	3,300	<160	<250	<250
Toluene	290,000	51,000	10,000	440	<250	<250
1,2,3-Trichlorobenzene	<140	<250	<250	<120	<250	<250
1,2,4-Trichlorobenzene	<140	<250	<250	<120	<250	<250
1,1,1-Trichloroethane	1,750	<250	<250	<120	<250	<250
1,1,2-Trichloroethane	<140	<250	<250	<120	<250	<250
Trichloroethene	12,400	1,500	750	<120	<250	<250
Trichlorofluoromethane	<210	<250	<250	<180	<250	<250
1,2,3-Trichloropropane	<140	<250	<250	<120	<250	<250
1,2,4-Trimethylbenzene	39,500	16,000	1,100	310	<250	<250
1,3,5-Trimethylbenzene	10,400	4,700	390 J	860	<250	<250
Vinyl chloride	<210	<500	<500	<180	<500	<500
Xylenes (total)	499,000	160,000	7,100	2,100	300 J	160 J

a Results are the average of two analyses.
J Estimated Value (less than PQL but greater than the MDL).
-- Not reported.

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Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST0B51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0B91	******	******	******	****** [redacted]	0.00
2ST0C51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0C54	4.0 J	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST0D11	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D14	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D31	5.0 U	2.0 J	5.0 U	9.0 [redacted]	0.00
2ST0D34	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D71	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D74	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D91	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0D94	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0E51	1.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0F11	13.0	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST0F14	8.0	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST0F31	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0F34	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0F71	8.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0F74	8.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0F91	**39.0**	5.0 U	6.0	9.0 [redacted]	1.95
2ST0F94	8.0	5.0 U	5.0	9.0 [redacted]	0.00
2ST0G11	3.0 J	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST0G14	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G31	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G34	2.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G71	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G74	7.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G91	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0G94	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0H31	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0H34	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0H51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0H54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0I51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0I54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0J51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0J54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0K51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0K54	5.0 U	2.0 J	5.0 U	9.0 [redacted]	0.00
2ST0L51	2.0 J	2.0 J	5.0 U	9.0 [redacted]	0.00
2ST0L54	4.0 J	8.0	5.0 U	9.0 [redacted]	0.00
2ST0M51	4.0 J	3.0 J	5.0 U	9.0 [redacted]	0.00
2ST0M54	5.0 U	1.0 J	5.0 U	9.0 [redacted]	0.00
2ST0N51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0N54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0O51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0O54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST0P51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol		Total MPS
2ST0P54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST0Q51	5.0 U	5.0 U	5.0	9.0	[redacted]	0.00
2ST0Q54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST0R51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST0R54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1B71	5.0 U	5.0 U	2.0 J	9.0	[redacted]	0.00
2ST1B74	2.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1B91	5.0 U	2.0 J	1.0 J	9.0	[redacted]	0.00
2ST1B94	5.0 U	5.0 U	1.0 J	9.0	[redacted]	0.00
2ST1C51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1C54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1D51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1D54	5.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1E51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1E54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F51	1.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F54	13.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F74	12.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F91	7.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1F94	**20.0**	2.0 J	3.0 U*	9.0	[redacted]	1.00
2ST1G11	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1G14	18.0	5.0 U	3.0 J	9.0	[redacted]	0.00
2ST1G31	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1G34	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1G71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1G74	3.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1G91	10.0	5.0 U	1.0 J	9.0	[redacted]	0.00
2ST1G94	2.0 J	5.0 U	2.0 J	9.0	[redacted]	0.00
2ST1H31	1.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1H34	1.0 J	5.0 U	2.0 J	9.0	[redacted]	0.00
2ST1H51	**40.0**	5.0 U	5.0 U	9.0	[redacted]	2.00
2ST1H54	4.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1I51	**650.0** DJ	**11000.0** D	45.0	9.0	[redacted]	142.50
2ST1I54	**370.0** D	**880.0** D	10.0	9.0	[redacted]	27.30
2ST1J51	**150.0**	4.0 J	12.0 U	22.5	[redacted]	8.75
2ST1J54	17.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1K51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1K54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1L51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1L54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1M51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1M54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1N51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1N54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1O51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1O54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1P51	5.0 U	12.0	5.0 U	9.0	[redacted]	0.00
2ST1P54	5.0 U	5.0 U	1.0 J	9.0	[redacted]	0.00
2ST1Q51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST1Q54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA
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Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST1R51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST1R54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2B51	2.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2B54	1.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2C71	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2C74	1.0 J	1.0 J	5.0 U	9.0 [redacted]	0.00
2ST2C91	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST2C94	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2D51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2D54	5.0 U	5.0 U	5.0 U	1.0 J	0.00
2ST2E51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2E91	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2E94	11.0	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST2F11	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2F14	**36.0**	5.0 U	5.0 U	4.0 J	1.80
2ST2F31	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2F34	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2F71	**86.0** J	5.0 UJ	[illegible]	9.0 [redacted]	[illegible]
2ST2F74	**46.0**	5.0 U	5.0 U	9.0 [redacted]	2.30
2ST2F91	3.0 J	**200.0** J	5.0 U	9.0 [redacted]	2.00
2ST2F94	19.0	17.0	3.0 U*	9.0 [redacted]	0.00
2ST2G11	**26.0** J	5.0 U	34.0 J	9.0 [redacted]	1.30
2ST2G14	**130.0**	15.0 U	15.0 U	27.0 [redacted]	8.00
2ST2G31	**50.0**	20.0 U	190.0	36.0 [redacted]	4.50
2ST2G34	**38.0**	5.0 U	1.0 J	9.0 [redacted]	1.90
2ST2G71	11.0	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST2G91	10.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2G94	**40.0**	2.0 J	6.0	9.0 [redacted]	2.00
2ST2H11	5.0 UJ	5.0 UJ	5.0 UJ	9.0 [redacted]	0.00
2ST2H14	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST2H31	5.0 U	1.0 J	5.0 U	9.0 [redacted]	0.00
2ST2H34	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST2H51	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST2H54	6.0	5.0 U	3.0 J	9.0 [redacted]	0.00
2ST2I11	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2I14	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2I31	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2I34	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2I71	**63.0**	5.0 U	5.0 U	9.0 [redacted]	3.15
2ST2I74	**45.0**	5.0 U	5.0 U	9.0 [redacted]	2.25
2ST2I91	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2I94	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2J51	**24.0**	5.0 U	1.0 J	9.0 [redacted]	1.20
2ST2J54	**71.0**	5.0 U	5.0 U	2.0 J	3.55
2ST2K51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2K54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST2L51	**85.0**	18.0	10.0 U	18.0 [redacted]	5.25
2ST2L54	**38.0**	5.0 U	5.0 U	9.0 [redacted]	1.90

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol		Total MPS
2ST2M51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2M54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2N51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2N54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2O51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2O54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2P51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2P54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2Q51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2Q54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2R51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST2R54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3B51	4.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3B54	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3C71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3C74	5.0 U	5.0 U	1.0 J	9.0	[redacted]	0.00
2ST3D51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3D54	**61.0**	5.0 U	5.0 U	9.0	[redacted]	3.05
2ST3E11	1.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3E14	**58.0**	5.0 U	5.0 U	9.0	[redacted]	2.90
2ST3E71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3E74	**49.0**	5.0 U	5.0 U	9.0	[redacted]	2.45
2ST3E91	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3E94	**290.0**	**110.0**	20.0 U	36.0	[redacted]	17.60
2ST3F11	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3F14	**120.0** E	5.0 U	5.0 U	9.0	[redacted]	6.00
2ST3F31	2.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3F34	**84.0** E	1.0 J	5.0 U	9.0	[redacted]	4.20
2ST3F71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3F74	**180.0**	15.0 U	15.0 U	27.0	[redacted]	10.50
2ST3F91	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3F94	**100.0** J	11.0	5.0 U	9.0	[redacted]	5.00
2ST3G11	7.0	5.0 U	3.0 J	9.0	[redacted]	0.00
2ST3G14	**30.0**	5.0 U	5.0	9.0	[redacted]	1.50
2ST3G31	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3G34	**130.0** D	4.0 J	5.0 U	9.0	[redacted]	6.50
2ST3G71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3G74	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3G91	**110.0**	15.0 U	15.0 U	27.0	[redacted]	7.00
2ST3G94	12.0	5.0 U	1.0 J	9.0	[redacted]	0.00
2ST3H11	1.0 J	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3H14	**130.0** D	5.0 U	1.0 J	9.0	[redacted]	6.50
2ST3H31	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3H34	**180.0**	14.0 J	20.0 U	36.0	[redacted]	11.00
2ST3H71	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3H74	8.0	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3H91	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00
2ST3H94	**59.0**	5.0 U	5.0 U	9.0	[redacted]	2.95
2ST3I51	5.0 U	5.0 U	5.0 U	9.0	[redacted]	0.00

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST3I54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3J51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3J54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3K51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3K54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3L51	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST3L54	4.0 J	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST3M51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3M54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3N51	4.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3N54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3O51	5.0 U	6.0	5.0 U	9.0 [redacted]	0.00
2ST3O54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3P51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3P54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3Q51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3Q54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3R51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST3R54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4B51	[illegible]	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4C51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4C54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4D51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4D54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4E51	9.0 J	5.0 J	5.0 U	2.0 J	0.00
2ST4E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4F51	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST4F54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4G51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4G54	10.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4H51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4H54	**160.0**	10.0 U	10.0 U	18.0 [redacted]	9.00
2ST4I51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4I54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4J51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4J54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4K51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4K54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4L51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4L54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4M51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4M54	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST4N51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4N54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4O51	5.0 U	6.0	5.0 U	9.0 [redacted]	0.00
2ST4O54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4P51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4P54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4Q51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4Q54	5.0 U	5.0 U	5.0 U	9.0 J	0.00
2ST4R51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST4R54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST5B51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5C51	5.0 UJ	5.0 UJ	5.0 UJ	9.0 [redacted]	0.00
2ST5C54	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST5D51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5D54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5E51	1.0 U*	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5E54	1.0 U*	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5F51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5F54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5G51	1.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5G54	15.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5H51	1.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5H54	1.0 J	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST5I51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5I54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5J51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5J54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5K51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5K54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	[illegible]
2ST5L51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5L54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5M51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5M54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5N51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5N54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5O51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5O54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5P51	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST5P54	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST5Q51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5Q54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5R51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST5R54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6B51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6C51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6C54	2.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6D51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6D54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6E51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
X 2ST6F51	5.0 U	1.0 J	5.0 U	9.0 [redacted]	0.00
2ST6F54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6G51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST6G54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST7B51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7C51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7C54	9.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7D51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7D54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7E51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7F51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7F54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7G51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST7G54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8B51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8B54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8C51	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8C54	5.0 U	5.0 U	1.0 J	9.0 [redacted]	0.00
2ST8D51	**23.0**	5.0 U	5.0 U	1.0 J	1.15
2ST8D54	14.0	5.0 U	5.0 U	2.0 J	0.00
2ST8E51	**26.0**	5.0 U	5.0 U	3.0 J	1.30
2ST8E54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8F51	5.0 U	5.0 U	2.0 J	9.0 [redacted]	0.00
2ST8F54	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST8G51	5.0 U	5.0 UJ	5.0 U	9.0 [redacted]	0.00
2ST8G54	5.0 U	5.0 UJ	5.0 U	9.0 [redacted]	0.00
2ST9B41	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9B44	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9C41	5.0 U	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9C44	5.0 UJ	5.0 UJ	5.0 UJ	9.0 [redacted]	0.00
2ST9D41	4.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9D44	7.0	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9E41	2.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9E44	2.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00

SEMIVOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Naphthalene	Isophorone	Phenol	Pentachlorophenol	Total MPS
2ST9F41	3.0 J	5.0 U	5.0 U	9.0 [redacted]	0.00
2ST9F44	5.0 J	5.0 U	5.0 U	2.0 J	0.00
2ST9G41	5.0 UJ	5.0 UJ	5.0 UJ	9.0 [redacted]	0.00
2ST9G44	5.0 UJ	5.0 UJ	5.0 UJ	9.0 [redacted]	0.00

Key:
U = Sample is not detected above the listed detection limit
J = Estimated value
N = Sample spike recovery is outside of control limits
E = Concentrations exceed the upper level of the calibration range of the instrument used for analyses
D = Diluted sample
B = Value was obtained from a reading less than the Contract Required Detection Limit but greater that or equal to the Instrument Detection Limit
* = Sample and sample duplicate are not within control limits
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
****** = Sample data was not included in original data tables
[redacted] A value of one-half the detection limit was used to determine the sample concentration vs. MPS
All results are in ug/l

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST0B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0B91	******	******	******	******	******	******	******	0.00
2ST0C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0C54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0D11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.055 JP	0.2 U	0.00
2ST0D14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.062 J	0.2 U	0.00
2ST0D31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.091 JP	0.2 U	0.00
2ST0D34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0D71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0D74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0D91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0D94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F31	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0F34	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0F71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0F94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0G11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0G14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0G31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0G34	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0G71	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0G74	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0G91	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0G94	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0H31	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0H34	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0H51	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0H54	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST0I51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0I54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST0Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST0R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1B71	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST1B74	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST1B91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1B94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1C51	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST1C54	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST1D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1F51	0.2 U	0.4 U	0.2 U	1.7	0.2 U	0.2 U	0.2 U	3.40
2ST1F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1F71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1F74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1F91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1F94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1G94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1H31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1H34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1H51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1H54	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.00
2ST1I51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1I54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST1R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST2B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2C71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2C74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2C91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2C94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2E91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2E94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F31	0.2 U	0.4 U	0.2 U	0.12 J	0.2 U	0.2 U	0.2 U	0.00
2ST2F34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2F94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G11	0.2 U	0.4 U	0.2 U	0.2 U	0.22	0.2 U	0.2 U	0.00
2ST2G14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2G94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2H54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2I94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST2O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST2R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.9** P	1.80
2ST3B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3C71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3C74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3E94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3F94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3G94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H31	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H34	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H71	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H74	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H91	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3H94	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3I51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3I54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST3L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST3R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4C54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4F51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4G51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4G54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4H51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4H54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4I51	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00
2ST4I54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST4R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5B51	0.3 [redacted]	0.6 [redacted]	0.3 [redacted]	0.3 [redacted]	0.3 [redacted]	0.3 [redacted]	0.3 [redacted]	1.20
2ST5B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5C54	[illegible]	0.4 U	[illegible]	0.2 U	0.2 U	0.2 U	0.2 U	[illegible]

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST5D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5F51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5G51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5G54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5H51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5H54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5I51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5I54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5J51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5J54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5K51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5K54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5L51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5L54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5M51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5M54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5N51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5N54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5O51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5O54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5P51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5P54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5Q51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5Q54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5R51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST5R54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6C54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.1 J	0.2 U	0.00
2ST6F51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6G51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST6G54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7C54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7F51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

POLYCHLORINATED BIPHENYLS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA
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Sample Name	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Total MPS
2ST7G51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST7G54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8B51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 J	0.00
2ST8B54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.014 JP	0.00
2ST8C51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8C54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8D51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8D54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8E51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8E54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8F51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8F54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8G51	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST8G54	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9B41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9B44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9C41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9C44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9D41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9D44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9F41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9E44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9F41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9F44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9G41	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00
2ST9G44	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00

Key:

U = Sample is not detected above the listed detection limit

J = Estimated value

* = Sample and sample duplicate are not within control limits

P = There was a greater than 25% difference for detected concentrations between the two GC or HPLC columns. The lower of the two values is reported.

******= Sample data was not included in original data tables

A value of one-half the detection limit was used to determine the sample concentration vs. MPS

[1] All results are in ug/L.

CYANIDE
SOIL ANALYTICAL RESULTS
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GARY, INDIANA

Sample Name	Results		Total MPS
2ST0B51	31.1		0.00
2ST0B54	13.7		0.00
2ST0B91	******		0.00
2ST0C51	10.0	U	0.00
2ST0C54	10.0	U	0.00
2ST0D11	40.3		0.00
2ST0D14	10.0	U	0.00
2ST0D31	10.0	U	0.00
2ST0D34	10.0	U	0.00
2ST0D71	10.0	U	0.00
2ST0D74	10.0	U	0.00
2ST0D91	10.0	U	0.00
2ST0D94	**395.0**		1.98
2ST0E51	25.1		0.00
2ST0E54	10.0	U	0.00
2ST0F11	10.0	U	0.00
2ST0F14	10.0	U	0.00
2ST0F31	10.0	U	0.00
2ST0F34	10.0	U	0.00
2ST0F71	10.0	U	0.00
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	38.3		[illegible]
2ST0F94	10.0	U	0.00
2ST0G11	10.0	U	0.00
2ST0G14	10.0	U	0.00
2ST0G31	10.0	U	0.00
2ST0G34	10.0	U	0.00
2ST0G71	10.0	U	0.00
2ST0G74	10.0	U	0.00
2ST0G91	10.0	U	0.00
2ST0G94	10.0	U	0.00
2ST0H31	10.0	U	0.00
2ST0H34	10.0	U	0.00
2ST0H51	130.0		0.00
2ST0H54	10.0	U	0.00
2ST0I51	10.0	U	0.00
2ST0I54	10.0	U	0.00
2ST0K51	10.0	U	0.00
2ST0K54	10.0	U	0.00
2ST0L51	10.0	U	0.00
2ST0L54	10.0	U	0.00
2ST0M51	10.0	U	0.00
2ST0M54	10.0	U	0.00
2ST0N51	10.0	U	0.00
2ST0N54	10.0	U	0.00
2ST0O51	10.0	U	0.00
2ST0O54	10.0	U	0.00
2ST0P51	10.0	U	0.00
2ST0P54	10.0	U	0.00
2ST0Q51	10.0	U	0.00
2ST0Q54	10.0	U	0.00
2ST0R51	10.0	U	0.00
2ST0R54	10.0	U	0.00
2ST1B71	10.0	U	0.00
2ST1B74	[illegible]	U	0.00
[illegible]	[illegible]		[illegible]
2ST1B94	35.2		0.00
2ST1C51	10.0	U	[illegible]

Sample Name	Results		Total MPS
2ST1C54	10.0	U	0.00
2ST1D51	10.0	U	0.00
2ST1D54	10.0	U	0.00
2ST1E51	10.0	U	0.00
2ST1E54	10.0	U	0.00
2ST1F51	21.7		0.00
2ST1F54	10.0	U	0.00
2ST1F71	10.0	U	0.00
2ST1F74	10.0	U*	0.00
2ST1F91	10.0	U	0.00
2ST1F94	41.3		0.00
2ST1G11	10.0	U	0.00
2ST1G14	10.0	U*	0.00
2ST1G31	10.0	U	0.00
2ST1G34	10.0	U*	0.00
2ST1G71	14.7	*	0.00
2ST1G74	10.0	U*	0.00
2ST1G91	10.0	U*	0.00
2ST1G94	31.7	*	0.00
2ST1H31	10.0	U	0.00
2ST1H34	10.0	U	0.00
[illegible]	[illegible]		[illegible]
[illegible]	10.0	U	[illegible]
2ST1I51	10.0	U	0.00
2ST1I54	10.0	U	0.00
2ST1J51	10.0	U	0.00
2ST1J54	10.0	U	0.00
2ST1K51	10.0	U	0.00
2ST1K54	10.0	U	0.00
2ST1L51	10.0	U	0.00
2ST1L54	10.0	U	0.00
2ST1M51	10.0	U	0.00
2ST1M54	10.0	U	0.00
2ST1N51	10.0	U	0.00
2ST1N54	10.0	U	0.00
2ST1O51	10.0	U	0.00
2ST1O54	10.0	U	0.00
2ST1P51	10.0	U	0.00
2ST1P54	10.0	U	0.00
2ST1Q51	10.0	U	0.00
2ST1Q54	10.0	U	0.00
2ST1R51	10.0	U	0.00
2ST1R54	10.0	U	0.00
2ST2B51	10.0	U	0.00
2ST2B54	14.3		0.00
2ST2C71	90.9		0.00
2ST2C74	41.3		0.00
2ST2C91	10.0	U	0.00
2ST2C94	16.9		0.00
2ST2D51	10.0	U	0.00
2ST2D54	10.0	U	0.00
2ST2E51	10.0	U	0.00
2ST2E54	10.0	U	0.00
[illegible]	10.0	U	0.00
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
2ST2F14	387.0		1.94
2ST2F31	10.0	U	0.00

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Sample Name	Results		Total MPS
2ST2F34	10 0	U	0.00
2ST2F71	10 0	U	0 00
2ST2F74	10.0	U	0 00
2ST2F91	10 0	U	0.00
2ST2F94	10.0	U	0 00
2ST2G11	10 0	U	0 00
2ST2G14	10 0	U	0 00
2ST2G31	**425.0**		2 13
2ST2G34	**228.0**		1 14
2ST2G71	44 8		0 00
2ST2G91	49 6		0 00
2ST2G94	13 1		0 00
2ST2H11	10 0	U	0 00
2ST2H14	15 6	*	0 00
2ST2H31	12 2	*	0.00
2ST2H34	10 0	U*	0 00
2ST2H51	10 0	U*	0 00
2ST2H54	10 0	U*	0 00
2ST2I11	**266.0**		1 33
2ST2I14	[illegible]	[illegible]	[illegible]
2ST2I31	[illegible]	[illegible]	[illegible]
2ST2I34	65 4		0 00
2ST2I71	10 0	U	0 00
2ST2I74	10 0	U	0 00
2ST2I91	102 0		0 00
2ST2I94	23 0		0 00
2ST2J51	154 0		[illegible]
2ST2J54	10 0	U	0 00
2ST2K51	10 0	U	0 00
2ST2K54	27.0		0.00
2ST2L51	10.0	U	0.00
2ST2L54	26.7		0.00
2ST2M51	10.0	U	0.00
2ST2M54	10.0	U	0.00
2ST2N51	**343.0**		1.72
2ST2N54	10 0	U	0 00
2ST2O51	10.0	U	0 00
2ST2O54	10 0	U	0 00
2ST2P51	10 0	U	0 00
2ST2P54	10 0	U	0 00
2ST2Q51	10 0	U	0 00
2ST2Q54	10 0	U	0 00
2ST2R51	11 4		0 00
2ST2R54	10 0	U	0 00
2ST3B51	10 0	U	0 00
2ST3B54	73 6		0 00
2ST3C71	10 0	U	0 00
2ST3C74	10 0	U	0 00
2ST3D51	[illegible]		[illegible]
2ST3D54	[illegible]		[illegible]
2ST3E11	10 0	U	0 00
2ST3E14	[illegible]	U	0 00
2ST3E71	75 9		0 00
2ST3E74	[illegible]	U	[illegible]
2ST3F91	[illegible]	[illegible]	[illegible]
2ST3F94	**12400.0**	J	62 00
[illegible]			[illegible]

CYANIDE
SOIL ANALYTICAL RESULTS
MIDCO II SITE
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Sample Name	Results		Total MPS
2ST3F31	**251.0**		1.26
2ST3F34	126.0		0.00
2ST3F71	10.0	U	0.00
2ST3F74	14.5		0.00
2ST3F91	10.0	UJ	0.00
2ST3F94	41.9	J	0.00
2ST3G11	10.0	U*	0.00
2ST3G14	**1600.0**	*	8.00
2ST3G31	10.0	U	0.00
2ST3G34	**979.0**		4.90
2ST3G71	50.7		0.00
2ST3G74	24.9		0.00
2ST3G91	10.0	UN	0.00
2ST3G94	10.0	U	0.00
2ST3H11	10.0	U	0.00
2ST3H14	74.3		0.00
2ST3H31	10.0	UN	0.00
2ST3H34	10.0	UN	0.00
2ST3H71	10.0	UJ	0.00
2ST3H74	10.0	U	0.00
2ST3H91	10.0	UN	0.00
2ST3H94	10.0	UN	0.00
2ST3I51	10.0	U	0.00
2ST3I54	10.0	U	0.00
2ST3J51	10.0	U	0.00
2ST3J54	10.0	U	0.00
2ST3K51	10.0	U	0.00
2ST3K54	10.0	U	0.00
2ST3L51	10.0	U	0.00
2ST3L54	10.0	U	0.00
2ST3M51	10.0	U	0.00
2ST3M54	10.0	U	0.00
2ST3N51	10.0	U	0.00
2ST3N54	18.3		0.00
2ST3O51	53.5		0.00
2ST3O54	**324.0**		1.62
2ST3P51	10.0	U	0.00
2ST3P54	14.7		0.00
2ST3Q51	10.0	U	0.00
2ST3Q54	10.0	U	0.00
2ST3R51	10.0	U	0.00
2ST3R54	10.0	U	0.00
2ST4B51	10.0	U	0.00
2ST4B54	10.0	U	0.00
2ST4C51	13.1		0.00
2ST4C54	10.0	U	0.00
2ST4D51	10.0	U	0.00
2ST4D54	10.0	U	0.00
2ST4E51	**4070.0**	J	20.35
2ST4F54	1600.0	J	8.00
2ST4F51	**100000.0**		500.00
2ST4F54	29.1		0.00
2ST4G51	**100000.0**		500.00
2ST4G54	27.1		0.00
2ST4H51	[illegible]	UJ	[illegible]
2ST4H54	**1350.0**	J	[illegible]
2ST4I51	10.0	U	0.00
[illegible]	[illegible]		[illegible]

CYANIDE
SOIL ANALYTICAL RESULTS
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Sample Name	Results		Total MPS
2ST4J51	10.0	U	0.00
2ST4J54	10.0	U	0.00
2ST4K51	10.0	U	0.00
2ST4K54	10.0	U	0.00
2ST4L51	10.0	U	0.00
2ST4L54	10.0	U	0.00
2ST4M51	10.0	U	0.00
2ST4M54	10.0	U	0.00
2ST4N51	10.0	U	0.00
2ST4N54	10.0	U	0.00
2ST4O51	10.0	U	0.00
2ST4O54	10.0	U	0.00
2ST4P51	10.0	U	0.00
2ST4P54	10.0	U	0.00
2ST4Q51	10.0	U	0.00
2ST4Q54	10.0	U	0.00
2ST4R51	10.0	U	0.00
2ST4R54	10.0	U	0.00
2ST5B51	10.0	U	0.00
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]
2ST5C54	21.2		0.00
2ST5D51	10.0	U	0.00
2ST5D54	10.0	U	0.00
2ST5E51	80.9	J	0.00
2ST5E54	11.7	J	0.00
2ST5F51	40.6		0.00
2ST5F54	10.0	U	0.00
2ST5G51	10.0	U	0.00
2ST5G54	90.7		0.00
2ST5H51	10.0	U	0.00
2ST5H54	10.0	U	0.00
2ST5I51	10.0	U	0.00
2ST5I54	10.0	U	0.00
2ST5J51	10.0	U	0.00
2ST5J54	172.0		0.00
2ST5K51	10.0	U	0.00
2ST5K54	10.0	U	0.00
2ST5L51	10.0	U	0.00
2ST5L54	10.0	U	0.00
2ST5M51	10.0	U	0.00
2ST5M54	10.0	U	0.00
2ST5N51	10.0	U	0.00
2ST5N54	10.0	U	0.00
2ST5O51	10.0	U	0.00
2ST5O54	10.0	U	0.00
2ST5P51	10.0	U*	0.00
2ST5P54	10.0	U*	0.00
2ST5Q51	10.0	U	0.00
2ST5Q54	[illegible]	U	0.00
2ST5R51	10.0	U	0.00
2ST5R54	10.0	U	0.00
2ST6B51	13.6		0.00
2ST6B54	11.7		0.00
[illegible]	[illegible]		[illegible]
2ST6C51	10.0	U	0.00
2ST6D51	26.7		0.00
[illegible]	[illegible]	U	[illegible]

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Sample Name	Results		Total MPS
2ST6E51	10 0	U	0.00
2ST6E54	10 0	U	0 00
2ST6F51	43.3		0 00
2ST6F54	10.0	U	0.00
2ST6G51	10.0	U	0.00
2ST6G54	10.0	U	0.00
2ST7B51	10 0	U	0 00
2ST7B54	10 0	U	0 00
2ST7C51	34 1		0 00
2ST7C54	10 0	U	0 00
2ST7D51	10 0	U	0 00
2ST7D54	10 0	U	0 00
2ST7E51	[illegible]		0 00
2ST7E54	10 0	U	0 00
2ST7F51	57 8		0 00
2ST7F54	10 0	U	0 00
2ST7G51	50 1		0 00
2ST7G54	**279.0**		1 40
2ST8B51	10 0	U	0 00
2ST8B54	[illegible]	U	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
2ST8D51	10 0	U	0 00
2ST8D54	10 0	U	0 00
2ST8E51	10 0	U	0.00
2ST8E54	10 0	U	0 00
2ST8F51	10 0	U *	0 00
2ST8F54	35 5	*	0 00
2ST8G51	10 0	U	0 00
2ST8G54	10 0	U	0 00
2ST9B41	10 0	U	0.00
2ST9B44	10.0	U	0.00
2ST9C41	10.0	U	0.00
2ST9C44	10.0	U	0.00
2ST9D41	10.0	U	0.00
2ST9D44	10 0	U	0.00
2ST9E41	10 0	U	0 00
2ST9E44	10.0	U	0.00
2ST9F41	10.0	U	0 00
2ST9F44	10 0	U	0.00
2ST9G41	10 0	U	0 00
2ST9G44	10 0	U	0.00

Key:
U = Sample is not detected above the listed detection limit
J = Estimated value
N = Sample spike recovery is outside of control limits
E = Concentrations exceed the upper level of the calibration range of the instrument used for analyses
D - Diluted sample
B - Value was obtained from a reading less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit
* - Sample and sample duplicate are not within control limits
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified
****** - Sample data was not included in original data tables
A value of one-half the detection limit was used to determine the sample concentration vs. MPS
[illegible]

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST0B51	3.2	U	31.2		0.3	U	11.5		57.2		14.0		16.3	B	100.0		0.00
2ST0B54	7.7		78.7		0.3	U	10.6		46.2		**20.3**		2.9	U	82.4		1.35
2ST0B91																	
2ST0C51	4.2	B	26.6		0.4	B	0.6	U	59.0		2.1		5.8	B	34.4		0.00
2ST0C54	3.7	B	134.0		0.5	B	7.1	B	80.8		10.7		7.0	B	186.0		0.00
2ST0D11	3.2	U	3.6	B	0.5	B	0.6	U	4.7	B	1.4	U	1.2	U	4.2	B	0.00
2ST0D14	3.5	B	241.0		0.3	B	9.1	B	**385.0**		30.0		11.6	B	407.0		5.85
2ST0D31	4.1	B	43.4		2.0	B	1.2	B	83.9		1.4	U	4.8	B	43.5		0.00
2ST0D34	3.5	B	290.0		0.5	B	11.2		**140.0**		**26.7**		4.6	B	169.0		3.18
2ST0D71	3.3	B	225.0		0.4	B	89.1		85.8		8.5		18.2	B	140.0		0.00
2ST0D74	4.6	B	185.0		0.3	U	4.4	B	72.1		10.7		17.0	B	219.0		0.00
2ST0D91	3.2	U	170.0		0.4	B	9.8	B	**252.0**		12.7		5.5	B	200.0		2.52
2ST0D94	3.2	U	118.0		3.8	B	1.9	B	34.8		1.4	U	5.1	B	50.9		0.00
2ST0E51	4.0	B	262.0		0.5	B	7.8	B	57.1		**36.2**		6.9	B	156.0		2.41
2ST0E54	3.9	B	254.0		1.0	B	5.8	B	94.8		12.4		9.6	B	327.0		0.00
2ST0F11	3.2	U	135.0		0.5	B	**147.0**		**259.0**		8.4		49.5	B	113.0	E	4.06
2ST0F14	3.2	U	170.0		0.3	U	4.9	B	60.4		11.3		4.6	B	158.0	E	0.00
2ST0F31	3.2	U	13.2	BE	0.3	U	2.6	B	4.9	B	1.4	U	11.3	B	6.9	UE	0.00
2ST0F34	3.2	U	12.6	BE	0.3	U	3.5	B	31.3		2.7		2.4	B	40.9	E	0.00
2ST0F71	3.2	U	15.6	B	0.3	U	4.1	B	55.9		3.5		3.5	B	60.5	E	0.00
2ST0F74	3.2	U	188.0		0.3	U	11.9		51.0		**17.7**		6.6	B	148.0	E	1.18
2ST0F91	3.2	U	32.7		0.3	U	3.4	B	52.4		3.9		7.1	B	37.2	E	0.00
2ST0F94	3.2	U	109.0		0.4	B	3.8	B	**117.0**		14.7		6.1	B	121.0	E	1.17
2ST0G11	3.2	U	211.0		0.5	B	3.6	B	**279.0**		**19.7**		5.2	B	314.0	E	4.10
2ST0G14	3.2	U	24.3		0.4	B	16.2		42.1		3.0		4.4	B	52.8	E	0.00
2ST0G31	3.2	U	266.0		0.3	U	4.5	B	55.9		4.1		4.1	B	133.0	E	0.00
2ST0G34	3.2	U	216.0		0.3	U	3.2	B	**131.0**		10.0		7.2	B	174.0	E	1.31
2ST0G71	3.2	U	51.7		1.4	B	1.6	B	**159.0**		2.5		31.6	B	110.0	E	1.59
2ST0G74	3.2	U	113.0	E	0.5	B	1.8	B	14.9	B	9.2		9.2	B	54.2	E	0.00
2ST0G91	3.2	U	18.1	BE	0.3	B	4.6	B	13.7	B	3.1		13.6	B	79.3	E	0.00
2ST0G94	4.2	B	239.0	E	0.4	B	4.3	B	**155.0**		**18.3**		6.0	B	222.0	E	2.77
2ST0H31	3.2	U	13.9	BE	0.3	U	3.1	B	58.5		4.9		2.2	B	76.4	E	0.00
2ST0H34	7.1		26.6	E	0.3	U	12.4		45.5		3.4		11.2	B	36.7	E	0.00
2ST0H51	3.2	U	10.7	UE	0.3	U	2.4	B	8.1	B	2.1		2.0	B	18.8	UE	0.00
2ST0H54	15.9		23.7	E	0.4	B	5.8	B	34.9	B	6.8		7.6	B	66.6	E	0.00
2ST0I51	3.2	U	109.0		0.3	U	18.4		39.0		8.7		7.4	B	96.7		0.00
2ST0I54	3.2	U	27.2		0.3	U	1.2	B	11.9	B	1.4	U	20.8	B	4.7	U	0.00
2ST0J51	3.2	U	72.7		0.3	U	7.5	B	65.2		4.2		1.6	B	59.5		0.00
2ST0J54	3.2	U	48.6		0.3	U	3.3	B	42.4		2.6		1.2	U	37.4		0.00
2ST0K51	3.2	U	218.0		0.6	B	10.4		**210.0**		**19.8**		6.3	B	273.0		3.42
2ST0K54	3.2	U	248.0		0.7	B	24.6		**191.0**		**17.6**		6.5	B	246.0		3.08

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST0L51	3.2	U	37.4		0.3	U	6.8	B	**351.0**		1.4	U	6.4	B	3.5	U	3.51
2ST0L54	3.2	U	17.8	B	0.3	U	2.2	B	72.8		1.4	U	5.1	B	17.3	U	0.00
2ST0M51	3.2	U	459.0		0.8	B	39.3		**405.0**		**35.6**		8.0	B	510.0		6.42
2ST0M54	3.2	U	193.0		4.0		91.9		96.8		10.7		4.2	B	169.0		0.00
2ST0N51	3.2	U	217.0		**6.5**		77.0		**123.0**		10.6		31.2	B	181.0		2.53
2ST0N54	3.2	U	98.7		**7.7**		18.3		13.5	B	1.4	U	11.5	B	79.9		1.54
2ST0O51	3.2	U	118.0		0.3	U	10.6		73.4		10.0		9.8	B	91.7		0.00
2ST0O54	3.2	U	150.0		0.7	B	43.6		4.2		5.2		73.8		191.0		0.00
2ST0P51	3.2	U	68.0		0.3	U	16.9		41.3		1.4	U	20.7	B	1.1	U	0.00
2ST0P54	3.2	U	105.0		0.3	U	16.2		23.9	B	5.5		17.0	B	79.5		0.00
2ST0Q51	3.2	U	28.5		1.3	B	6.2	B	46.0		2.4		7.9	B	67.6		0.00
2ST0Q54	3.2	U	116.0		0.3	U	16.0		33.6		4.7		20.5	B	80.6		0.00
2ST0R51	3.4	B*	284.0		0.3	U	4.2	B	11.8	B	1.4	U	2.3	B	694.0		0.00
2ST0R54	4.8	B*	76.2		0.3	U	0.8	B	3.1	B	1.4	U	1.5	B	36.3		0.00
2ST1B71	3.2	U	147.0	E	0.5	B	**177.0**		52.0		**102.0**		5.2	B	125.0	E	8.57
2ST1B74	3.2	U	50.8	E	0.3	U	2.2	B	29.2	B	4.1		15.2	B	20.5	UE	0.00
2ST1B91	3.2	U	39.5		4.1		9.3	B	**162.0**		5.7		6.5	U	134.0		1.62
2ST1B94	3.2	U	66.4		0.6	B	12.9		**275.0**		**88.4**		24.1	B	245.0		8.64
2ST1C51	3.2	U	174.0	E	1.2	B	5.8	B	**136.0**		12.3		10.4	B	214.0	E	1.36
2ST1C54	3.2	U	67.9	E	0.5	B	3.8	B	46.7		3.8		11.9	B	50.8	E	0.00
2ST1D51	3.2	U	55.2		0.5	B	3.2	B	52.9		1.4	U	24.1	B	22.5		0.00
2ST1D54	3.2	B	287.0		0.5	B	7.1	B	**175.0**		11.3		18.4	B	237.0		1.75
2ST1E51	3.2	U	224.0		0.3	U	18.9		75.8		5.9		10.2	B	120.0	E	0.00
2ST1E54	3.2	U	152.0		0.3	U	3.6	B	35.4		7.9		2.8	B	78.8	E	0.00
2ST1F51	3.2	U	155.0		0.3	U	24.0		19.0	B	3.7	U	4.3	B	66.9	E	0.00
2ST1F54	3.2	U	160.0		0.3	U	8.5	B	**348.0**		**31.5**		5.0	B	299.0	E	5.58
2ST1F71	3.2	U	122.0		0.3	U	4.9	B	**213.0**		**15.2**		5.5	B	184.0	E	3.14
2ST1F74	3.2	U	33.6		0.3	U	2.1	B	36.9		1.4	U	13.3	B	24.0	E*	0.00
2ST1F91	3.2	U	176.0		0.3	U	2.9	U*	46.6		7.0		7.8	B	127.0		0.00
2ST1F94	11.4		173.0		0.3	U	4.1	B	**187.0**		**18.4**		7.7	B	171.0		3.10
2ST1G11	3.2	U	31.7		0.3	U	3.5	B	72.5		13.1		3.0	B	112.0	E	0.00
2ST1G14	3.2	U	25.6		0.3	U	1.7	B	23.4	B	5.1		9.3	B	22.7	E*	0.00
2ST1G31	3.2	U	185.0		0.3	U	34.2		74.7		8.9		19.5	B	183.0	E	0.00
2ST1G34	3.2	U	182.0		0.3	U	8.1	B	**161.0**		**19.5**		11.3	B	221.0	E*	2.91
2ST1G71	3.2	U	14.0	B	0.3	U	1.3	B	64.2		3.1		3.9	B	59.2	E*	0.00
2ST1G74	3.2	U	98.9		0.3	U	9.0	B	**192.0**		**22.9**		6.0	B	165.0	E*	3.45
2ST1G91	3.2	U	34.3		0.3	U	2.0	B	29.5	B	4.7		9.6	B	77.7	E*	0.00
2ST1G94	3.2	U	177.0		0.3	U	15.7		86.7		**18.8**		13.4	B	269.0	E*	1.25
2ST1H31	3.2	U	11.4	B	0.3	U	1.9	B	5.6	B	1.4	U	2.4	B	19.3	UE*	0.00
2ST1H34	3.2	U	158.0		0.3	U	4.8	B	29.7	B	4.0		3.9	B	133.0	E*	0.00
2ST1H51	3.2	U	225.0		0.3	U	31.6		**144.0**		**16.9**		18.1	B	241.0	E	2.57

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST1H54	3.2	U	462.0	E	0.4	B	8.4	B	[illegible]		**18.4**		7.6	B	254.0	E	1.23
2ST1I51	3.2	U	163.0		0.3	U	17.1		**211.0**		11.3		24.0	B	202.0		2.11
2ST1I54	3.2	U	133.0		0.3	U	11.6		**151.0**		11.6		5.5	B	124.0		1.51
2ST1J51	3.2	U	145.0		0.7	B	17.6		[illegible]		7.3		28.7	B	176.0		0.00
2ST1J54	3.2	U	114.0		0.3	U	13.6		**351.0**		12.4		30.9	B	298.0		3.51
2ST1K51	3.2	U	109.0		0.3	U	4.5	B	**111.0**		8.0		9.8	B	116.0		1.11
2ST1K54	3.2	U	9.7	U	0.3	U	0.6	U	[illegible]		1.4	U	1.2	U	22.8		0.00
2ST1L51	3.2	U	122.0		0.3	U	3.1	B	95.8		8.1		4.1	B	145.0		0.00
2ST1L54	4.4	B	120.0		0.3	U	3.0	B	[illegible]		9.7		33.9	B	136.0		0.00
2ST1M51	3.2	U	182.0		0.3	U	18.9		**294.0**		**22.9**		20.2	B	245.0		4.47
2ST1M54	3.2	U	124.0		0.6	B	9.5	B	[illegible]		3.3		3.7	B	109.0		0.00
2ST1N51	3.2	U	116.0	E	0.3	U	12.6		[illegible]		2.3		11.4	U	127.0		0.00
2ST1N54	3.2	U	9.8	BE	0.8	B	0.6	U	[illegible]	B	1.4	U	1.2	U	47.3		0.00
2ST1O51	3.2	U	25.8		0.3	U	3.0	B	[illegible]	B	1.4	U	6.0	B	6.4	U	0.00
2ST1O54	3.2	U	41.5		0.3	U	13.7		[illegible]		1.8	B	21.4	B	35.2		0.00
2ST1P51	3.2	U	75.8		1.9	B	**127.0**		41.8		1.5	B	21.2	B	58.1		1.27
2ST1P54	3.2	U	128.0		0.9	B	39.2		**128.0**		**32.5**		18.0	B	113.0		3.45
2ST1Q51	3.2	U	92.0		0.3	U	4.8	B	[illegible]	U	1.4	U	1.9	B	0.5	U	0.00
2ST1Q54	3.2	U	101.0		0.3	U	19.7		45.0		6.4		35.3	B	88.6		0.00
2ST1R51	4.5	B	24.5		0.3	U	1.6	B	1.0	U	1.4	U	1.2	U	20.2	U	0.00
2ST1R54	3.6	B*	28.1		0.3	U	0.6	U	[illegible]	B	1.4	U	2.3	B	19.3	U	0.00
2ST2B51	3.2	U	41.6		0.3	U	1.6	B	17.9	B	1.7	B	3.4	U	41.5		0.00
2ST2B54	3.2	U	158.0		0.3	U	2.9	B	**111.0**		**34.8**		37.3	B	332.0		3.43
2ST2C71	3.2	U	88.4	E	0.5	B	14.7		**133.0**		**25.3**		11.0	B	102.0	E	3.02
2ST2C74	3.2	U	77.9	E	0.3	U	31.7		10.8	B	1.4	U	1.3	B	9.5	UE	0.00
2ST2C91	3.2	U	31.0		0.3	U	6.4	B	15.7	B	1.4	U	3.4	U	18.9	U	0.00
2ST2C94	3.2	U	18.3	B	0.3	U	7.4	B	**208.0**		**36.1**		15.2	B	141.0		4.49
2ST2D51	3.2	U	24.6	E	0.3	U	8.3	B	25.2	B	1.4	U	19.9	B	23.3	E	0.00
2ST2D54	3.2	U	35.1		0.3	U	5.8	B	[illegible]	B	3.6		3.7	U	36.2	E	0.00
2ST2E51	3.2	U	37.9		0.3	U	0.6	U	[illegible]	B	1.4	U	3.1	B	9.5	UE	0.00
2ST2E54	3.2	U	196.0		0.3	U	3.3	U	[illegible]	B	4.8		3.7	B	97.4	E	0.00
2ST2E91	3.2	U	111.0		0.3	U	2.3	B	38.6		4.1		5.1	U	73.1	E	0.00
2ST2E94	3.2	U	178.0		0.3	U	8.4	B	**132.0**		9.3		11.0	B	142.0	E	1.32
2ST2F11	3.2	U	162.0		0.3	U	8.2	B	[illegible]	B	1.4	U	9.0	B	131.0	E	0.00
2ST2F14	24.4		243.0		3.3	B	12.2		**127.0**		**66.5**		46.6	B	330.0	E	5.70
2ST2F31	3.2	U	144.0		0.3	U	6.5	B	[illegible]	B	8.9		5.0	B	101.0	E	0.00
2ST2F34	3.2	U	333.0		0.3	U	7.5	B	[illegible]	B	5.7	U	5.3	B	79.5	E	0.00
2ST2F71	6.8		181.0		0.3	U	18.2		[illegible]		5.8	J	55.3		133.0		0.00
2ST2F74	3.7	B	271.0		0.3	U	2.5	U*	[illegible]	B	3.7		12.2	B	99.8	J	0.00
2ST2F91	3.2	U	532.0		1.0	U*	31.5		**456.0**		**232.0**		36.6	B	467.0		20.03
2ST2F94	3.2	U	34.3		0.3	U	0.7	U*	[illegible]	B	1.4	U	12.2	B	8.4	J	0.00

METALS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST2G11	3.2	U	285.0	J	0.3	U	34.1	J	**212.0**	J	**25.8**	J	24.1	B	342.0	J	3.84
2ST2G14	3.2	U	115.0		0.3	U	1.7	U*	5.5	B	2.4		9.4	B	20.0	J	0.00
2ST2G31	3.2	U	88.4		0.3	U	2.3	B	29.9	B	1.4	U	19.3	B	15.9	UE*	0.00
2ST2G34	3.2	U	196.0		0.3	U	0.9	B	12.9	B	2.1		16.8	B	17.8	UE*	0.00
2ST2G71	3.2	U	141.0		0.3	U	3.7	B	**341.0**		**22.1**		31.4	B	186.0	E*	4.88
2ST2G91	25.2		304.0		14.0		**178.0**		**2150.0**		**794.0**		**357.0**		**1420.0**	E*	83.82
2ST2G94	3.2	U	63.0		0.3	U	5.2	B	[illegible]1.5	B	5.9		21.8	B	20.0	UE*	0.00
2ST2H11	3.2	U	182.0		0.3	U	3.2	U*	[illegible]1.7		3.6	J	4.0	B	53.4	J	0.00
2ST2H14	6.6		214.0		0.9	B	47.6		**37[illegible].0**		**75.2**		42.9	B	388.0	E*	8.72
2ST2H31	3.2	U	72.8		0.3	U	4.7	B	[illegible]1.7		4.9		8.1	B	63.1	E*	0.00
2ST2H34	36.2		59.1		0.3	B	5.8	B	**10[illegible].0**		6.6		6.3	B	76.6	E*	1.07
2ST2H51	3.2	U	124.0		0.3	U	**256.0**		[illegible]6.0		10.3		**123.0**		100.0	E*	3.79
2ST2H54	3.2	U	32.5		0.3	U	2.6	B	[illegible]7.1	B	5.0		8.6	B	55.8	E*	0.00
2ST2I11	3.2	U	124.0		0.3	U	58.6		**124.0**		10.3		4.4	B	143.0		1.24
2ST2I14	4.8	B	199.0		0.3	U	21.5		**155.0**		**24.9**		9.0	B	215.0		3.21
2ST2I31	3.2	U	198.0		1.5	B	40.4		**596.0**		**75.9**		83.0		335.0		11.02
2ST2I34	3.2	U	85.9		0.3	U	4.9	B	**194.0**		11.2		**123.0**		122.0		3.17
2ST2I71	3.2	U	167.0		1.0	B	9.7	B	**111.0**		8.9		83.5		146.0		1.11
2ST2I74	3.2	U	140.0		0.3	U	15.4		89.6		8.2		24.2	B	174.0		0.00
2ST2I91	4.6	B	152.0		0.5	B	37.8		**106.0**		**54.6**		35.2	B	140.0		4.70
2ST2I94	3.2	U	110.0		**11.1**		8.4	B	48.3		**15.3**		8.0	B	169.0		3.24
2ST2J51	3.2	U	145.0		0.3	U	38.9		**268.0**		**17.8**		29.5	B	221.0		3.87
2ST2J54	3.2	U	166.0		0.8	U	23.2		**193.0**		14.5		22.0	B	372.0		1.93
2ST2K51	3.2	U	185.0		1.3	U	14.6		81.4		14.5		8.4	B	127.0		0.00
2ST2K54	3.2	U	143.0		0.3	U	15.4		**186.0**		**21.2**		14.9	B	239.0		3.27
2ST2L51	3.2	U	63.3	E	0.3	U	1.4	B	28.5	B	1.4	U	4.5	U	49.0		0.00
2ST2L54	3.2	U	179.0	E	0.3	U	**169.0**		**360.0**		**42.6**		**129.0**		284.0		9.42
2ST2M51	3.2	U	57.0	E	0.3	U	5.6	B	10.1	B	1.4	U	3.8	U	14.5	U	0.00
2ST2M54	3.2	U	13.3	BE	0.4	B	1.1	B	12.3	B	1.4	U	42.6	B	29.1		0.00
2ST2N51	3.2	U	62.9	E	0.3	U	1.3	B	1[illegible].7	B	1.4	U	11.3	U	9.8	U	0.00
2ST2N54	3.2	U	20.2	E	0.3	U	1.3	B	5.8	B	1.4	U	2.8	U	8.1	U	0.00
2ST2O51	3.2	U	110.0		0.3	U	30.6		**122.0**		9.6		44.0	B	111.0		1.22
2ST2O54	3.2	U	131.0		0.5	B	25.2		**157.0**		14.2		36.5	B	148.0		1.57
2ST2P51	3.2	U	58.8		0.3	U	41.1		1[illegible].0	B	1.4	U	50.3		12.7	U	0.00
2ST2P54	3.2	U	129.0		0.4	B	21.8		**1220.0**		6.7		28.2	B	121.0		12.20
2ST2Q51	3.2	U	155.0		0.3	U	11.4		[illegible].4	B	1.4	U	54.7		10.6	U	0.00
2ST2Q54	3.2	U	195.0		0.4	B	24.0		**234.0**		3.8		46.7	B	106.0		2.34
2ST2R51	3.2	U	65.0		0.3	U	0.6	U	[illegible].5	U	1.4	U	1.2	U	0.5	U	0.00
2ST2R54	3.6	B	286.0		0.3	U	0.6	U	[illegible].5	B	1.4	U	1.2	U	595.0		0.00
2ST3B51	4.1	B	99.0		0.3	U	1.6	B	[illegible]		8.0		4.0	U	80.5		0.00

METALS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA
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Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST3B54	6.5		119.0		0.3	U	2.1	B	46.6		14.1		6.1	U	118.0		0.00
2ST3C71	3.2	U	94.1		0.3	U	33.9		30.4		2.8		4.8	U	30.9		0.00
2ST3C74	3.2	U	101.0		0.5	B	13.2		**109.0**		1.4	U	8.7	B	45.9		1.09
2ST3D51	3.2	U	62.0		0.3	U	1.6	B	**109.0**		5.6		1.4	U	88.6	E	1.09
2ST3D54	7.3		233.0		0.3	U	8.6	B	95.1		**27.4**		19.0	B	271.0	E	1.83
2ST3E11	3.7	B	106.0		1.0	B	0.7	B	85.8		1.4	U	5.3	U	23.0	U	0.00
2ST3E14	5.7		68.3		0.3	U	1.1	B	6.6	B	1.4	U	8.6	B	3.3	U	0.00
2ST3E71	5.9		114.0		1.9	B	1.9	B	18.2	B	1.4	U	5.4	U	17.7	U	0.00
2ST3E74	3.2	U	48.6		0.3	U	2.0	B	9.8	B	7.3	U	2.8	B	12.7	UE	0.00
2ST3E91	3.2	U	288.0		0.3	U	52.8		79.8		14.1	J	81.0		469.0		0.00
2ST3E94	7.0	U*	148.0	U*	0.3	U	**141.0**		**13400.0**		5.3	U*	**395.0**		139.0	U*	139.36
2ST3F11	3.2	U	171.0		0.3	U	5.1	B	**104.0**		**15.4**		5.0	B	216.0	E	2.07
2ST3F14	3.2	U	25.0		0.3	U	3.2	B	27.2	B	7.1	U	4.0	B	78.4	E	0.00
2ST3F31	3.2	U	212.0		0.3	U	9.1	B	**272.0**		**25.6**		8.5	B	315.0	E	4.43
2ST3F34	3.2	U	190.0		0.3	U	8.1	B	**106.0**		14.8		8.9	B	221.0	E	1.06
2ST3F71	3.2	U	198.0		0.3	U	15.1		**320.0**		**36.8**		12.1	B	454.0	E	5.65
2ST3F74	3.2	U	197.0		0.3	U	12.0		**721.0**		**58.8**		9.0	B	606.0	E	11.13
2ST3F91	3.2	U	257.0		0.3	U	18.2		48.6		14.8	J	5.6	B	214.0		0.00
2ST3F94	3.2	U	314.0	U*	0.6	U*	10.1	U*	73.5	[redacted]	8.2	U*	10.5	U*	230.0	U*	0.00
2ST3G11	8.8		95.2		0.4	B	2.8	B	54.1		3.9		9.6	B	85.2	E*	0.00
2ST3G14	18.8		67.6		0.3	U	5.9	B	**184.0**		5.5		19.9	B	56.1	E*	1.84
2ST3G31	3.2	U	113.0		0.3	U	88.7		25.6	B	7.3	U	39.2	B	40.8	E	0.00
2ST3G34	3.2	U	132.0		0.3	U	15.3		46.8		3.4	U	4.6	B	68.6	E	0.00
2ST3G71	3.2	U	129.0		0.3	U	1.4	B	4.2	B	1.4	U	2.1	B	0.5	UE*	0.00
2ST3G74	3.2	U	187.0		0.3	U	12.4		**169.0**		**18.1**		10.5	B	214.0	E*	2.90
2ST3G91	3.2	U	209.0		0.3	U	41.7		**304.0**		**36.3**		22.0	B	347.0		5.46
2ST3G94	3.2	U	53.8		1.3	U	3.1	B	60.0		**15.5**		5.6	B	41.7	E	1.03
2ST3H11	3.2	U	68.1		0.3	U	4.2	B	38.2		6.4		8.7	B	86.2	E	0.00
2ST3H14	3.2	U	13.2	BE	0.8	B	1.0	B	**104.0**		9.0		6.5	B	69.6	E	1.04
2ST3H31	3.2	U	210.0		0.3	U	5.7	B	**253.0**		**22.3**		8.1	B	254.0		4.02
2ST3H34	3.2	U	447.0		0.3	U	16.8		**201.0**		6.0	J	16.6	B	160.0		2.01
2ST3H71	3.2	U	259.0	U*	0.3	U	5.5	U*	33.7	U*	6.4	U*	10.4	U*	126.0	U*	0.00
2ST3H74	3.2	U	58.9		0.3	U	5.2	B	33.3		7.5	J	4.4	B	64.7	J	0.00
2ST3H91	3.2	U	233.0	U*	0.3	U	**5080.0**		**180.5**	[redacted]	**15.9**	U*	44.3	U*	422.0	U*	53.66
2ST3H94	3.2	U	221.0		0.3	U	6.2	B	25.5	B	3.7	J	5.3	B	86.7	J	0.00
2ST3I51	3.2	U	118.0		0.3	U	17.1		**168.0**		**24.0**		15.6	B	303.0		3.28
2ST3I54	3.2	U	87.0		0.3	U	2.1	B	3.9	U	1.4	U	53.8		6.3	U	0.00
2ST3J51	3.2	U	127.0		0.3	U	8.4	B	67.1		9.4		6.9	B	141.0		0.00
2ST3J54	3.2	U	32.5		0.3	U	**137.0**		23.3	B	2.1		38.3	B	30.3		1.37
2ST3K51	3.2	U	130.0		0.3	U	20.3		23.6	B	6.7		15.7	B	108.0		0.00

METALS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST3K54	3.2	U	107.0		0.3	U	13.1		**312.0**		**33.8**		13.2	B	359.0		5.37
2ST3L51	3.2	U	97.7	E	0.3	U	46.4		[illegible]	B	4.8		50.5		74.1		0.00
2ST3L54	3.2	U	15.0	BE	0.3	U	3.1	B	[illegible]	U	1.4	U	5.9	U	0.5	U	0.00
2ST3M51	3.2	U	161.0	E	0.3	U	14.8		[illegible]		6.1		24.2	B	137.0		0.00
2ST3M54	3.2	U	106.0	E	0.3	U	82.3		[illegible]		5.6		52.5		116.0		0.00
2ST3N51	3.2	U	74.1	E	0.3	U	0.6	U	[illegible]	B	1.4	U	2.6	U	6.2	U	0.00
2ST3N54	3.2	U	15.6	B	0.3	U	0.8	B	[illegible]	U	1.4	U	1.5	B	5.4	U	0.00
2ST3O51	4.1	B	111.0		0.9	B	31.1		**106.0**		**37.5**		26.6	B	188.0		3.56
2ST3O54	3.2	U	22.8	E	0.3	U	0.8	B	[illegible]	U	1.4	U	6.0	U	0.5	U	0.00
2ST3P51	3.2	U	7.1	UE	0.3	U	4.1	B	[illegible]	B	1.4	U	13.2	U	0.5	U	0.00
2ST3P54	3.2	U	14.1	BE	0.3	U	7.6	B	[illegible]	B	1.4	U	8.4	U	6.7	U	0.00
2ST3Q51	3.2	U	319.0		0.3	U	2.5	B	[illegible]	B	3.4		2.5	B	534.0		0.00
2ST3Q54	3.4	B	83.1		0.3	U	0.6	U	[illegible]	U	1.4	U	1.2	U	0.8	U	0.00
2ST3R51	3.2	U	58.3		0.3	U	0.6	U	[illegible]	U	1.4	U	1.2	U	0.5	U	0.00
2ST3R54	3.3	B	90.6		0.3	U	0.6	U	[illegible]	U	1.4	U	1.7	B	32.9		0.00
2ST4B51	**32.8**		**233.0**		**0.8**	**U**	7.8	B	**439.0**		**87.8**		7.7	B	**638.0**	E*	10.24
2ST4B54	4.6	B	171.0		0.3	U	2.5	B	83.0		10.5		4.1	B	167.0	E*	0.00
2ST4C51	3.2	U	42.1		0.3	U	10.2		**274.0**		1.4	U	7.8	B	32.8		2.74
2ST4C54	3.2	U	35.4		0.3	U	7.5	B	**239.0**		2.2		6.0	U	42.8		2.39
2ST4D51	3.2	U	171.0		0.3	U	6.7	B	19.9	B	2.2		8.6	B	14.3	UE	0.00
2ST4D54	3.2	U	246.0		0.3	U	2.2	B	29.9	B	3.6		29.7	B	93.4	E	0.00
2ST4E51	3.2	U	214.0	J	**23.7**	J	11.5		**4270.0**	J	14.4	J	**2160.0**	J	432.0	J	69.04
2ST4E54	3.2	U	133.0		**33.8**		3.0	B	[illegible]	B	3.7	J	7.2	B	82.8	J	6.76
2ST4F51	3.2	U	23.3		0.3	U	32.1		[illegible]		1.6	B	**141.0**		42.9		2.62
2ST4F54	3.2	U	109.0		0.3	U	1.3	B	[illegible]		12.9		11.8	B	160.0		0.00
2ST4G51	3.2	U	33.3		0.3	U	22.5		58.4		2.3		29.0	B	72.2		0.00
2ST4G54	3.2	U	195.0		1.6	B	8.3	B	**110.0**		**23.8**		28.1	B	258.0		2.69
2ST4H51	3.2	U	25.4		0.3	U	2.3	B	[illegible]	B	**50.2**		4.8	B	51.8	J	3.35
2ST4H54	3.2	U	68.0	U*	0.3	U	2.5	U*	[illegible]	U*	**77.8**		6.4	U*	58.9	U*	5.19
2ST4I51	3.2	U	35.9		0.3	U	2.1	B	[illegible]	U	1.4	U	5.8	B	6.8	U	0.00
2ST4I54	3.2	U	155.0		0.3	U	4.8	B	[illegible]		7.1		3.7	B	130.0		0.00
2ST4J51	3.2	U	238.0		0.3	U	8.9	B	**165.0**		**21.0**		4.1	B	221.0		3.05
2ST4J54	3.2	U	158.0		0.3	U	10.1		[illegible]		12.5		7.0	B	194.0		0.00
2ST4K51	3.2	U	192.0		0.3	U	**197.0**		**180.0**		**21.5**		38.0	B	186.0		5.20
2ST4K54	3.2	U	150.0		0.3	U	4.5	B	**206.0**		**21.6**		4.3	B	211.0		[illegible]
2ST4L51	3.2	U	103.0		0.3	U	4.4	B	[illegible]		6.8		2.2	B	124.0		0.00
2ST4L54	3.2	U	110.0		0.3	U	7.6	B	**104.0**		6.9		7.9	B	136.0		1.04
2ST4M51	3.2	U	24.2		0.3	U	1.6	B	[illegible]	B	1.4	U	1.2	U	2.7	U	0.00
2ST4M54	3.2	U	133.0		0.3	U	5.0	B	[illegible]	B	3.3		3.7	B	98.0		0.00
2ST4N51	3.3	B	145.0		0.3	U	7.8	B	[illegible]		14.5		6.0	B	157.0		0.00
2ST4N54	3.3	B	148.0		0.3	U	10.3		[illegible]		11.5		6.6	B	135.0		0.00

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST4O51	3.2	U	86.8	E	0.3	U	**163.0**		[illegible]3		5.8		**170.0**		89.3		3.33
2ST4O54	3.2	U	114.0	E	0.3	U	4.1	B	[illegible]9.5		7.6		2.8	U	130.0		0.00
2ST4P51	3.2	U	50.1	E	0.3	U	7.8	B	[illegible]9.5	B	1.4	U	1.5	U	2.0	U	0.00
2ST4P54	3.2	U	121.0	E	0.3	U	7.4	B	[illegible]0.6	B	4.2		5.0	U	83.8		0.00
2ST4Q51	3.2	U	136.0		0.3	U	0.6	U	[illegible]0.7	U	1.4	U	1.2	U	0.5	U	0.00
2ST4Q54	3.2	U	152.0		0.3	U	0.6	U	[illegible].2	U	1.4	U	4.8	B	30.4		0.00
2ST4R51	6.4		21.0		0.5	B	1.8	B	[illegible]2.0	U	1.4	U	1.3	B	0.5	U	0.00
2ST4R54	3.2	U	169.0		0.3	U	0.9	B	[illegible].9	U	1.4	U	3.2	B	50.3		0.00
2ST5B51	3.2	U	24.2		0.3	U	2.6	B	[illegible]8.4	B	4.5		2.8	B	35.9	E*	0.00
2ST5B54	3.2	U	180.0		0.3	U	6.4	B	**1450.0**		**76.5**		8.0	B	694.0	E*	19.60
2ST5C51	3.2	U	193.0		0.3	U	6.2	B	**701.0**		**29.9**		5.5	B	293.0	E*	9.00
2ST5C54	3.2	U	6.0	B	0.3	U	1.0	U	[illegible]6.5	B	1.4	U	4.5	B	43.5	E*	0.00
2ST5D51	3.2	U	55.5		0.6	U	1.0	B	**106.0**		**45.5**		26.3	B	234.0	E	4.09
2ST5D54	3.2	U	55.3		0.3	U	1.6	B	[illegible]3.0	B	3.5		6.3	B	24.7	E	0.00
2ST5E51	3.2	U	109.0	U*	0.3	U	2.4	U*	[illegible]7.7	U*	3.2	J	2.6	U*	33.8	U*	0.00
2ST5E54	3.2	U	165.0		0.4	B	3.4	B	[illegible]6.9		11.6	J	3.9	B	154.0		0.00
2ST5F51	3.2	U	15.5	B	0.4	B	2.3	B	[illegible]6.4	B	1.4	U	10.7	B	16.3	UE	0.00
2ST5F54	4.4	B	191.0		0.3	U	8.8	B	[illegible]9.5		6.6		6.5	B	151.0	E	0.00
2ST5G51	3.2	U	122.0		0.3	U	18.1		**135.0**		12.7		10.2	B	122.0		1.35
2ST5G54	3.2	U	149.0		0.3	U	60.2		69.6		8.0		18.1	B	87.3		0.00
2ST5H51	3.2	U	169.0		0.3	U	19.9		**121.0**		**18.4**		12.4	B	279.0		2.44
2ST5H54	3.2	U	165.0		0.3	U	9.2	B	65.0		14.7	N	8.3	B	168.0		0.00
2ST5I51	3.2	U	20.0	B	0.3	U	3.2	B	[illegible]9.9	B	9.4	N	3.4	B	37.0	U	0.00
2ST5I54	3.2	U	195.0		0.3	U	6.9	B	**113.0**		14.7	N	4.7	B	159.0		1.13
2ST5J51	3.2	U	241.0		0.7	B	71.0		76.4		**17.8**	N	4.8	B	418.0		1.19
2ST5J54	3.2	U	179.0		0.3	U	21.3		**766.0**		**72.2**	N	12.0	B	638.0		12.47
2ST5K51	3.5	B	147.0		0.3	U	4.3	B	**206.0**		**21.4**	N	4.7	B	203.0		3.49
2ST5K54	3.2	U	196.0		0.3	U	8.2	B	45.9		14.9	N	4.3	B	125.0		0.00
2ST5L51	3.2	U	174.0		0.3	U	4.2	B	**109.0**		**19.8**	N	4.7	B	152.0		2.41
2ST5L54	3.4	B	213.0		0.3	U	5.9	B	**263.0**		**25.8**	N	6.0	B	249.0		4.35
2ST5M51	3.2	U	15.5	B	0.3	U	1.5	B	[illegible].9	B	1.4	UN	2.4	B	14.5	U	0.00
2ST5M54	3.2	U	188.0		0.3	U	4.9	B	92.1		14.4	N	4.2	B	221.0		0.00
2ST5N51	3.2	U	202.0		0.3	U	7.3	B	[illegible]0.9		12.0	N	7.4	B	180.0		0.00
2ST5N54	3.2	U	208.0		0.3	U	5.6	B	**128.0**		**19.8**	N	4.5	B	164.0		2.60
2ST5O51	3.2	U	23.5		0.3	U	0.6	U	[illegible].2	B	1.4	UN	1.2	U	0.5	U	0.00
2ST5O54	3.2	U	197.0		0.3	U	3.6	B	[illegible]9		9.4	N	4.0	B	98.7		0.00
2ST5P51	5.6		36.4		0.3	U	1.4	B	[illegible]6	B	3.0		4.7	B	46.4	E*	0.00
2ST5P54	3.3	B	164.0		0.3	U	18.8		[illegible]9		5.8		15.2	B	129.0	E*	0.00
2ST5Q51	3.2	U	185.0		0.3	U	1.9	B	[illegible]3	B	1.4	U	3.0	B	152.0		0.00
2ST5Q54	3.6	B	130.0		0.3	U	0.6	U	[illegible]9	U	1.4	U	1.5	B	0.5	U	0.00
2ST5R51	3.2	U	144.0		0.5	B	0.6	U	[illegible]1	U	1.4	U	5.7	B	16.1	U	0.00

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST5R54	3.2	U	167.0		0.3	U	0.6	U	[illegible]	B	1.4	U	3.4	B	78.3		0.00
2ST6B51	4.8	B	72.9		0.3	U	0.8	U	[illegible]		2.6		3.2	B	56.0	E*	0.00
2ST6B54	4.0	B	143.0		0.3	U	0.9	U	[illegible]		10.7		6.5	B	150.0	E*	0.00
2ST6C51	3.2	U	130.0		0.3	U	8.1	B	[illegible]	B	1.4	U	23.0	B	17.8	UE	0.00
2ST6C54	3.2	U	422.0		0.3	U	11.9		[illegible]		**18.3**		35.7	B	171.0	E	1.22
2ST6D51	3.2	U	138.0		0.3	U	1.1	B	[illegible]	B	1.4	U	2.1	B	18.5		0.00
2ST6D54	4.8	B	209.0		0.4	B	3.6	B	[illegible]		**15.3**		4.6	B	122.0		1.02
2ST6E51	4.2	B	176.0		0.4	B	3.2	B	[illegible]		8.3		4.0	B	139.0		0.00
2ST6E54	9.4		155.0		0.5	B	2.6	B	[illegible]		**15.8**		2.4	B	89.9		1.05
2ST6F51	8.1		268.0		3.2	B	14.9		**273.0**		**261.0**		21.8	B	642.0		20.13
2ST6F54	10.4		174.0		0.3	U	3.4	B	**143.0**		13.4		3.6	B	156.0		1.43
2ST6G51	8.3		287.0		0.3	U	7.1	B	**137.0**		8.8		12.2	B	174.0		1.37
2ST6G54	5.4		18.9	B	0.3	U	0.9	B	[illegible]	B	1.4	U	2.6	B	17.4	U	0.00
2ST7B51	6.3		167.0		0.6	B	2.1	B	[illegible]	B	8.9		2.4	B	82.1		0.00
2ST7B54	6.1		51.2		0.5	B	2.0	B	[illegible]	B	1.4	U	3.3	B	44.5		0.00
2ST7C51	9.1		239.0		0.3	U	5.9	B	[illegible]	B	7.8		34.5	B	150.0		0.00
2ST7C54	8.4		338.0		0.3	U	8.3	B	[illegible]		**16.0**		17.7	B	161.0		1.07
2ST7D51	16.3		173.0		0.3	U	8.6	B	[illegible]		10.2		10.5	B	173.0		0.00
2ST7D54	8.6		236.0		0.3	U	2.8	B	[illegible]	B	2.7		11.6	B	93.6		0.00
2ST7E51	4.3	B	82.3		0.6	B	6.9	B	[illegible]	B	1.4	U	6.0	B	14.4	U	0.00
2ST7E54	10.0		155.0		0.3	B	7.6	B	[illegible]		6.4		4.9	B	84.1		0.00
2ST7F51	8.0		21.2		0.6	B	0.6	U	[illegible]	B	1.4	U	2.5	B	27.5		0.00
2ST7F54	8.2		15.4	B	0.5	B	0.6	U	[illegible]	B	1.4	U	2.2	B	3.3	U	0.00
2ST7G51	7.8		178.0		0.3	U	6.6	B	**140.0**		**22.0**		9.4	B	261.0		2.87
2ST7G54	7.4		6.2	U	0.5	B	0.6	U	[illegible]	B	1.4	U	2.2	U	0.5	U	0.00
2ST8B51	8.1		97.9		1.3	B	17.5		[illegible]		**108.0**	N	7.5	B	342.0		7.20
2ST8B54	3.2	U	19.9	B	0.3	U	0.6	U	[illegible]	B	1.4	UN	1.2	U	0.5	U	0.00
2ST8C51	3.2	U	283.0		0.3	U	4.6	B	[illegible]		12.9		12.4	B	136.0	E	0.00
2ST8C54	6.5	U	174.0		0.3	U	8.5	B	**207.0**		**22.3**		24.4	B	229.0	E	3.56
2ST8D51	6.7	U	147.0		0.3	U	1.9	U	[illegible]	U	1.4	U	22.6	B	21.2	UE	0.00
2ST8D54	11.5	U	430.0		0.3	U	6.2	B	[illegible]		11.3		30.3	B	255.0	E	0.00
2ST8E51	7.8	U	211.0		0.3	U	4.2	B	[illegible]	B	6.4		40.7	B	115.0	E	0.00
2ST8E54	3.2	U	285.0		0.3	U	15.6		**102.0**		**17.1**		18.7	B	189.0	E	2.16
2ST8F51	4.0	B	270.0		0.3	U	13.9		[illegible]		12.3		15.0	B	226.0	E*	0.00
2ST8F54	3.2	U	92.7		0.3	U	2.2	B	[illegible]	B	3.9		2.9	B	46.0	E*	0.00
2ST8G51	5.8		6.1	B	0.3	U	3.7	U*	[illegible]		4.7	J	6.1	B	14.4	J	0.00
2ST8G54	3.2	U	115.0		0.3	U	23.6		[illegible]	B	5.9	J	12.8	B	58.5	J	0.00
2ST9B41	6.3	U	169.0		0.3	U	5.8	B	**130.0**		**24.4**		3.7	B	191.0	E	2.93
2ST9B44	3.7	U	245.0		0.3	U	4.1	B	[illegible]	B	7.1		2.8	B	129.0	E	0.00
2ST9C41	5.7	U	262.0		0.3	U	9.2	B	**164.0**		14.8		5.5	B	229.0	E	1.64
2ST9C44	7.9	U	154.0		0.3	U	87.5		**366.[illegible]**		**27.9**		22.2	B	247.0	E	5.52

METALS
SOIL ANALYTICAL RESULTS
MIDCO II SITE
GARY, INDIANA

Sample Name	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Nickel		Zinc		Total MPS
2ST9D41	10.3	U	285.0		**0.3**	U	4.3	B	32[illegible]		**24.0**		27.5	B	293.0	E	1.60
2ST9D44	7.9	U	237.0		**0.4**	U	5.7	B	56[illegible]		**29.3**		19.6	B	285.0	E	1.95
2ST9E41	8.0	U	267.0		**0.3**	U	12.2		**262.[illegible]**		**20.0**		24.5	B	236.0	E	3.95
2ST9E44	5.4	U	320.0		**0.3**	U	6.2	B	1[illegible]	B	1.4	U	**147.0**		137.0	E	1.47
2ST9F41	3.2	B	133.0		**0.3**	U	1.6	U*	[illegible]	B	1.4	UJ	14.8	B	31.3	J	0.00
2ST9F44	3.2	U	58.6		**0.3**	U	1.0	U*	[illegible]	[illegible]	1.4	UJ	16.7	B	16.1	J	0.00
2ST9G41	4.3	B	232.0		**0.3**	UJ	10.8		**119.[illegible]**		**17.0**		19.3	B	299.0		2.32
2ST9G44	3.2	U	199.0	J	**0.3**	U	18.7	J	**523.[illegible]**	[illegible]	**69.1**	J	15.2	B	635.0	J	9.84

Key:

U Sample is not detected above the listed detection limit

J Estimated value

N Sample spike recovery is outside of control limits

E Concentrations exceed the upper level of the calibration range of the instrument used for analyses

D Diluted sample

B Value was obtained from a reading less than the Contract Required Detection Limit but greater that or equal to the Instrument Detection Limit

* Sample and sample duplicate are not within control limits

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified

****** = Sample data was not included in original data tables

[redacted] = A value of one-half the detection limit was used to determine the sample concentration in MPS

[1] All results are in ug/L

U.S. ENVIRONMENTAL PROTECTION AGENCY

ADMINISTRATIVE RECORD
FOR
MIDCO II SITE
GARY, LAKE COUNTY, INDIANA

ADMINISTRATIVE RECORD UPDATE FOR EXPLANATION OF SIGNIFICANT DIFFERENCES #3

SEPTEMBER 29, 2004

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	05/24/91	Boice, R., U.S. EPA	Barth, E., U.S. EPA	Memorandum re: QAPP for Treatability Study of Solidification/Stabilization and Soil Vapor Extraction for the Midco I and Midco II Sites	
2	05/24/91	Boice, R., U.S. EPA	Colson, J., U.S. EPA/ RREL	Memorandum re: QAPP for Treatability Study of Solidification/Stabilization and Soil Vapor Extraction for the Midco I and Midco II Sites	
3	11/12/91	Ball, R., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Solidification/Stabilization Binder Vendors for the Midco Treatability Study	
4	1992	RMC Environmental and Analytical Laboratories	File	Review of the Post-Treatment Data from the Treatability Studies on the Midco I and II Project	
5	04/09/92	Zownir, A. & H. Compton, U.S. EPA/ ERB	Boice, R., U.S. EPA	Memorandum re: Immobilization/Venting of Organics at the Midco I and Midco II Sites	
6	04/17/92	Berman, M., U.S. EPA	White, B., Karaganis & White, Ltd.	Letter re: Request for Comments on the Draft Amended Scope of Work for the Midco Treatability Study	
7	05/07/92	Boice, R., U.S. EPA	File	Conversation Record w/ R. Ball (ERM) re: Midco Treatability Study Statement of Work for an EPA Contractor	
8	05/28/92	Boice, R., U.S. EPA	File	Conversation Record w/ P. Churilla re: Midco Treatability Study Testing	
9	05/29/92	Boice, R., U.S. EPA	File	Conversation Record w/ H. Compton (U.S. EPA); et al. re: Treatability Study Testing for Midco I and Midco II Sites	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
10	06/01/92	ERM-North Central, Inc.	U.S. EPA	Sample Handling and Shipping Plan Binder Selection for the Midco Solidification/ Stabilization Treatability Study	
11	06/23/92	Boice, R., U.S. EPA	Ball, R., ERM-North Central, Inc.	Letter Forwarding Revision #3 of the Scope of Work for a Treatability Study at the Midco I and Midco II Sites (UNSIGNED)	
12	06/24/92	Boice, R., U.S. EPA	CRL	Memorandum re: SAS for Synthetic Precipitation Leach Procedure for Organic Compounds and Cyanide	
13	06/24/92	Boice, R., U.S. EPA	CRL	Memorandum re: Total Metals Analyses for the Midco Treatability Study	
14	06/26/92	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Letter re: Binder Selection for Solidification/ Stabilization for the Midco Treatability Study	
15	06/26/92	Tindall, K., U.S. EPA	Payne, D., U.S. EPA/ LSSS	Memorandum re: Draft SASs for the Midco I and Midco II Treatability Study w/ Attachments	
16	06/29/92	Boice, R., U.S. EPA	RMC Laboratories; et al.	Memorandum re: Analytical Procedures for the Midco I and Midco II Solidification/Stabilization Treatability Study	
17	08/25/92	Environmental Resources Management-North Central, Inc.	U.S. EPA	Field Sampling Plan: Binder Selection for the Solidification/Stabilization Treatability Study for the Midco I and Midco II Sites (Revision 1)	
18	09/30/92	Soundararajan, R., RMC Environmental and Analytical Laboratories	Hornung, S., Sverdrup Corporation	Letter re: Review, Interpretation and Prediction of Retention Values for PNAs	
19	11/05/92	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Midco Sites Binder Selection Study	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
20	11/18/92	Boice, R., U.S. EPA	Wesolowski, U.S. EPA; et al.	Memorandum re: Analytical Procedures for the Midco Treatability Study	
21	11/19/92	White, B., Karaganis & White, Ltd.	Boice, R., U.S. EPA	Letter re: Delay of Collection of Soil Samples for the S/S Binder Selection Study w/ Attachments	
22	01/19/93	Boice, R., U.S. EPA	Churilla, P., U.S. EPA/ CRL	Memorandum re: Review of Draft Midco Treatability Study SASs	
23	02/25/93	Boice, R., U.S. EPA	Ball, R., ERM-North Central, Inc.	Letter Forwarding the Analytical Procedures Proposed for the Midco I and Midco II Treatability Study (UNSIGNED)	
24	03/30/93	Boice, R., U.S. EPA	Ball, R., ERM-North Central, Inc.	Letter Forwarding the Draft QAPP for the Midco Treatability Study (UNSIGNED)	
25	04/20/93	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Comments on Weston's QAPP for the Solidification/Stabilization Treatability Study	
26	04/20/93	White, B., Karaganis & White, Ltd.	Boice, R., U.S. EPA & R. Schaible, IDEM	Letter re: Solidification/ Stabilization Analytical Procedures (HANDWRITTEN ANNOTATIONS)	
27	04/22/93	Boice, R., U.S. EPA	Patel, O., Roy F. Weston, Inc.	Letter re: U.S. EPA Comments on the Midco Treatability Study QAPP (UNSIGNED)	
28	05/00/93	Roy F. Weston, Inc.	U.S. EPA	Draft Quality Assurance Project Plan for Treatability Study of Soils for the Midco I and Midco II Sites (Volume I of II: Text, Tables, Figures and Appendices A-B) w/ June 10, 1993 U.S. EPA Approval Letter)	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
29	05/00/93	Roy F. Weston, Inc.	U.S. EPA	Draft Quality Assurance Project Plan for Treatability Study of Soils for the Midco I and Midco II Sites (Volume II of II: Appendices C-G)	
30	05/21/93	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Comments and Responses on the QAPP for Soil Treatability Study At the Midco I and Midco II Sites (HANDWRITTEN ANNOTATIONS)	
31	06/00/93	Boice, R., U.S. EPA	U.S. EPA/ HWI Sample Management Office	Special Analytical Services Regional Request for Midco Treatability Study	
32	06/04/93	Boice, R., U.S. EPA	Freeman, B., U.S. EPA/ LSSS	Memorandum re: Request for CLP Laboratory Space for the Midco I and Midco Treatability Study w/ Attachments	
33	06/07/93	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Procedure for Measuring In Situ Bulk Density	
34	06/07/93	RMC Environmental and Analytical Laboratories	File	Procedures for Qualitative Analysis for Sulfate in the Soil	
35	06/10/93	Boice, R., U.S. EPA	Millano, E., ERM-North Central, Inc.	Letter Forwarding the U.S. EPA Approved QAPP for the Midco I and Midco II Treatability Study	
36	06/14/93	Boice, R., U.S. EPA	Millano, E., ERM-North Central, Inc.	Letter re: Midco I and Midco II RD/RA QAPPs w/ Attachment	
37	06/16/93	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Comments on Weston's Quality Assurance Project Plan for the Midco Solidification/Stabilization Treatability Study	
38	06/16/93	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Comments on Weston's QAPP for the Solidification/Stabilization Treatability Study	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
39	06/16/93	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Midco I and Midco II Solidification/Stabilization Binder Selection	
40	06/16/93	Williams, B., Chemfix Technologies, Inc.	Patel, O., Roy F. Weston, Inc.	Letter re: Midco I and Midco II Chemset B-100M Binder	
41	06/18/93	Ball, R. & E. Millano, ERM-North Central, Inc.	Boice, R., U.S. EPA; et al.	FAX Transmission re: Tables for Binder Performance, Binder Study Results and Stabilization Performance Results for the Midco Treatability Study	
42	06/18/93	Maupin, G., Silicate Technology Corporation	Patel, O., Roy F. Weston, Inc.	Letter Forwarding Stabilization Reagents for the Midco Treatability Study	
43	06/18/93	Tittlebaum, M., In-Situ Fixation Company	Patel, O., Roy F. Weston, Inc.	Letter re: Mixing Instructions for Binders for the Midco I and Midco II Sites	
44	06/22/93	Boice, R., U.S. EPA	File	Conversation Record w/ E. Millano (ERM); et al. re: ERM Comments on VOC Emission Testing in the June 16, 1993 Memorandum for E. Millano	
45	06/22/93	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Proposed Binders for the Solidification/Stabilization Study for the Midco I and Midco II Sites	
46	07/01/93	Bhojwani, D. & P. Krishnan, Roy F. Weston, Inc.	Evans, J., Lewisburg, PA	Letter re: Revised Binder Mixing Procedures for Midco I and Midco II Treatability Study	
47	07/01/93	Boice, R., U.S. EPA	Freeman, B., U.S. EPA/ CRL; et al.	Memorandum re: Delay in Sampling for the Midco Treatability Study (HANDWRITTEN ANNOTATIONS)	
48	07/01/93	Williams, B., Chemfix Technologies, Inc.	Bhojwani, D., Roy F. Weston, Inc.	Letter re: Revised Instructions for Forming a Slurry with Chemset B-100M	

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49	07/23/93	Zarlinski, S., Kiber Environmental Services, Inc.	Bhojwomi, D., Roy F. Weston, Inc.	Memorandum re: Compaction Procedures for Midco Material	
50	07/26/93	Boice, R., U.S. EPA	Freeman, B., U.S. EPA/ CRL; et al.	Memorandum re: Schedule for Testing and Submission of Samples for the Midco Treatability Study	
51	08/05/93	Boice, R., U.S. EPA	Patel, O., Roy F. Weston, Inc.	Letter re: Treatability Study for Midco I and Midco II	
52	08/08/93	Patel, O., Roy F. Weston, Inc.	Zarlinski, S., Kiber Environmental Services, Inc.	Letter re: Soil/Binder Mixing Instructions for Testing of Midco Soils	
53	08/9-13/93	Boice, R., U.S. EPA	File	Handwritten Notes re: Additional Tasks to Oversight of Midco Treatability Study	
54	08/10/93	Boice, R., U.S. EPA	Freeman, B., U.S. EPA/ CRL	Memorandum re: Quality Assurance Requirements for the Midco I and Midco II Treatability Study	
55	08/13/93	Boice, R., U.S. EPA	Zarlinski, S., Kiber Environmental Services, Inc.	Letter re: Revised VOC Removal Testing Procedures	
56	08/13/93	Boice, R., U.S. EPA	Zarlinski, S., Kiber Environmental Services, Inc.	Letter re: Revised Binder Mixing Instructions	
57	08/13/93	Freeman, B., U.S. EPA	Weston, Inc.	Letter re: Midco I and Midco II Treatability Study w/ Attachments **(ONLY THAT PORTION OF THE LETTER REGARDING THE MIDCO II SITE IS INCLUDED IN THE ADMINISTRATIVE RECORD UPDATE FOR ESD #3)**	
58	08/25/93	Zarlinski, S., Kiber Environmental Services, Inc.	Boice, R., U.S. EPA	Letter re: Shipment of Solidified Soil Samples for the Midco Project	

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59	08/26/93	Boice, R., U.S. EPA	File	Conversation Record w/ S. Rodiger, (U.S. EPA); et al. re: TOC Samples for the Midco Treatability Study	
60	10/04/93	Boice, R., U.S. EPA	Patel, O., Roy F. Weston, Inc.	Letter re: Midco Treat-ability Study	
61	10/08/93	Boice, R., U.S. EPA	Patel, O., Roy F. Weston, Inc.	Letter re: Midco Treat-ability Study	
62	10/27/93	Boice, R., U.S. EPA	File	Conversation Record w/ C. Tang (CRL) re: Midco Treatability Study	
63	12/17/93	ERM-North Central, Inc.	U.S. EPA	Sediment Excavation Report for the Midco I and Midco II Sites	
64	02/17/94	Boice, R., U.S. EPA	Soundararajin, RMC Laboratory; et al.	Memorandum re: Results from the Midco Treatabil-ity Study on Solidifica-tion/Stabilization and Vapor Extraction	
65	02/25/94	Boice, R., U.S. EPA	Soundararajin, RMC Laboratories	Letter Forwarding Add-itional Background Docu-ments for the Midco Treatability Study (UNSIGNED)	
66	03/00/94	Kiber Environmental Services, Inc.	Roy F. Weston, Inc.	Interim Report: Treat-ability Study of Soils for the Midco I and Midco II Sites	
67	03/01/94	Boice, R., U.S. EPA	Millano, E., ERM-North Central, Inc.	Letter Forwarding Various Results from the Midco Treatability Study	
68	03/23/94	Banarjee, P., PRC Environmental Management, Inc.	Boice, R., U.S. EPA	Letter re: Review Comments on the Post-Treatment Data from the Treatability Studies for the Midco I and Midco II Sites	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
69	03/23/94	Banarjee, P., PRC Environmental Management, Inc.	Boice, R., U.S. EPA	Letter re: Report on the Impact of Physiochemical Properties on the Leaching of Priority Pollutants from a Stabilized Matrix for the Midco I and Midco II Sites	
70	03/30/94	Erickson, P., U.S. EPA/ RREL	Boice, R., U.S. EPA	Memorandum re: Comments on the Tests of Solid-ification/Stabilization for the Midco Site	
71	04/14/94	Boice, R., U.S. EPA	Travers, M., de maximus, inc.; et al.	Letter Forwarding Report on Midco Treatability Study Operations (UNSIGNED)	
72	04/20/94	Environmental Resources Management-North Central, Inc.	U.S. EPA	Addendum A: Remedial Design/Remedial Action Investigation and and Monitoring Plan for the Midco II Ditch and Pond Sediment Sampling Plan at the Midco I and Midco II Sites	
73	04/22/94	Environmental Resources Management-North Central, Inc.	U.S. EPA	Addendum B: Remedial Design/Remedial Action Investigation and and Monitoring Plan for the Midco II Ditch Surface Water Diversion Plan at the Midco I and Midco II Sites	
74	05/23/94	Millano, E., Environmental Resources Management-North Central, Inc.	Boice, R., U.S. EPA	FAX Transmission re: Midco I and Midco II Sediment Excavation Report Revisions	
75	05/25/94	Erickson, P., U.S. EPA/ RREL	Boice, R., U.S. EPA	Memorandum re: Additional Treatability Studies for the Midco I and Midco II Sites	
76	08/19/94	Boice, R., U.S. EPA	Millano, E., ERM-North Central, Inc.	Letter re: U.S. EPA's Comments and Recommenda-tions for the Midco Treatability Study (UNSIGNED)	

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77	08/26/94	Millano, E., Environmental Resources Management-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: U.S. EPA's Soil Solidification/Stabilization Treatability Study for the Midco I Midco II Sites w/ Attachments	
78	10/20/94	Millano, E., ERM-North Central, Inc.	Boice, R., U.S. EPA	Memorandum re: Laboratory Analyses for Samples Collected During the Solidification/Stabilization Binder Selection Study for Midco Soils	
79	01/29/95	Boice, R., U.S. EPA	Hutchins, R., ERM EnviroClean North Central, Inc.	Letter re: Sampling for the Midco II Treatability Study	
80	02/23/95	Bates, E., U.S. EPA/ RREL	Boice, R., U.S. EPA	Memorandum re: Analysis of Existing Information, Additional Data Needs, and Possible New Treatability Study for the Midco I and Midco II Sites w/ Attachments	
81	03/24/95	Boice, R., U.S. EPA	Soundararajan, RMC Laboratory	Letter Forwarding Various Documents for Review for the Midco I and Midco II Treatability Study	
82	03/24/95	Boice, R., U.S. EPA	Soundararajan, RMC Laboratory	Letter Forwarding Various Documents for Discussion for the Midco I and Midco II Treatability Study	
83	03/24/95	Environmental Resources Management-North Central, Inc.	U.S. EPA	Summary of Surface Water Diversion Activities at the Midco II Site	
84	04/11/95	Boice, R., U.S. EPA	U.S. EPA/ Special Analytical Services	Client Request: Synthetic Precipitation Leaching Procedure for Semivolatile Organic Compounds and Pesticide/PCBs; Metals; Cyanide; for the Midco Treatability Study Soil Samples and After Treatment by Solidification/ Stabilization w/ Attachments	

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85	05/22/95	Hutchens, R., ERM-North Central, Inc.	Boice, R., U.S. EPA	Letter re: Comments on U.S. EPA's Proposed Additional Soil Treat-ability Study Activities for the Midco I and Midco II Sites	
86	07/05/95	Zarlinski, S., Kiber Environmental Services, Inc.	Patel, O., Roy F. Weston, Inc.	Letter re: Revised UCS Test Results for the Midco I and Midco II Treatability Study	
87	08/03/95	Boice, R., U.S. EPA	Bates, E., U.S. EPA; et al.	Memorandum re: Results of Additional SPLP Tests for the Midco Treatabililty Study w/ Attachments	
88	08/04/95	Boice, R., U.S. EPA	Travers, M., de maximus, inc.	Letter re: Results of Unconfined Compressive Strength Tests and Additional SPLP Tests for the Midco I and Midco II Treatability Study (UNSIGNED)	
89	09/11/95	Boice, R., U.S. EPA	Travers, M., de maximus, inc.	Letter re: Further Treatability Testing for Solidification/ Stabilization at the Midco I and Midco II Sites (UNSIGNED)	
90	09/28/95	Hutchens, R., ERM-EnviroClean-North Central, Inc.	Boice, R., U.S. EPA	Letter re: Additional Treatability Testing for the Midco I and Midco Sites	
91	10/02/95	Schaible, R., IDEM	Boice, R., U.S. EPA	Letter re: IDEM's Comments on the Treatability Study for the Midco I and Midco II Sites	
92	11/02/95	Bates, E., U.S. EPA/ NRMRL	Boice, R., U.S. EPA	Memorandum re: Draft QAPP for Midco Treat-ability Studies	
93	11/09/95	Hutchens, R., ERM-North Central, Inc.	Boice, R., U.S. EPA	Field Sample Collecting, Handling, and Shipping Plan for Soil Solidifi-cation/Stabilization Further Treatability Study w/ Cover Letter	

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94	11/28/95	Boice, R., U.S. EPA	Hutchins, R., ERM EnviroClean North Central, Inc.	Letter re: U.S. EPA's Approval (w/ Revisions) of the Field Sample Collecting, Handling, and Shipping Plan for Soil Solidification/ Stabilization Further Treatability Study	
95	11/30/95	Boice, R., U.S. EPA	Hutchins, R., ERM EnviroClean North Central, Inc.	Letter re: Sampling for Midco II Treatability Study	
96	12/14/95	Boice, R., U.S. EPA	File	Draft Scope of Work for a Treatability Study at the Midco I and Midco II Sites (Revision #4)	
97	12/18/95	Boice, R., U.S. EPA	Bates, E., U.S. EPA; *et al.*	Memorandum re: Updated SOPs for Analyses of *Untreated Soil Samples* for the Midco Treatability Study w/ Attachments	
98	12/21/95	Science Applications International Corporation	U.S. EPA	Quality Assurance Project Plan (Category III): Bench-Scale Treatability Study for Evaluating Solidification/Stabil-ization of Soils from the Midco I and Midco II Sites (Final Draft)	
99	01/23/96	Travers, M., de maximus, inc.	Boice, R., U.S. EPA	Letter re: Solidification/ Stabilization Study for the Midco I and Midco II Sites	
100	01/24/96	Roy F. Weston, Inc.	U.S. EPA	Work Plan for Treatability Study of Soils for the Midco I and Midco II Sites (Revision #4)	
101	02/09/96	Balla, T. & O. Patel, Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Oversight of Shipment of Untreated Soil Samples to CRL for the Midco I and Midco II Sites	
102	02/09/96	Boice, R., U.S. EPA	Travers, M., de maximus, inc.	Letter re: Procedures for Further Solidifcation/ Stabilization Testing	

for the Midco Treatability Study w/ Attachments

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103	02/22/96	Boice, R., U.S. EPA	File	Conversation Record w/ E. Bates (U.S. EPA); et al. re: Review of Results for Untreated Soil Samples for the Midco I and Midco II Treatability Study w/ Attachments	
104	03/00/96	Roy F. Weston, Inc.	U.S. EPA	Solidified Soil Testing Results (UCS and Hydraulic Conductivity) for the Midco I and Midco II Sites	
105	03/01/96	Patel, O., Roy F. Weston, Inc.	Dial, C., Science Applications International Corporation	Letter re: Transmittal of Testing Results for Untreated Soil Samples for the Midco I and Midco II Sites	
106	12/00/96	Roy F. Weston, Inc.	U.S. EPA	Solidified Soil Testing Results (UCS and Hydraulic Conductivity) for the Midco I and Midco II Sites	
107	02/21/97	Boice, R., U.S. EPA	Luckett, C., U.S. EPA	Client Request: Total SVOCs, Total Pesticide/ PCBs and PH for Midco Treatability Study Samples After Treatment by Solid-ification/Stabilization w/ Attachments	
108	02/24/97	Semenak, R., Kiber Environmental Services, Inc.	Patel, O., Roy F. Weston, Inc.	Letter re: Round 3 CRL Shipments for the Midco Treatability Study	
109	02/28/97	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Modification of Sampling and Shipment Protocols for the Midco I Site	
110	03/17/97	Patel, O., Roy F. Weston, Inc.	Tillman, J., Science Applications International Corporation	Letter re: Transmittal of Testing Results for Third Round Treatability Study Samples for the Midco I and Midco II Sites	

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111	04/25/97	Patel, O., Roy F. Weston, Inc.	Tillman, J., Science Applications International Corporation	Letter re: Transmittal of Hydraulic Conductivity Testing Results for Treated Soil Samples at the Midco I and Midco II Sites	
112	04/29/97	Patel, O., Roy F. Weston, Inc.	Tillman, J., Science Applications International Corporation	Letter re: Transmittal of Testing Results for the Third Round Treatability Study Samples for the Midco I and Midco II Sites	
113	04/30/97	Science Applications International Corporation	U.S. EPA	Summary Report: Solid-ification/Stabilization Treatability Test on Soil Samples Collected from the Midco I and Midco II Superfund Sites	
114	12/09/97	Boice, R., U.S. EPA	Travers, M., de maxiumus, inc.	Letter re: Request for Comments on the Draft ESD for the Midco I and Midco II Sites w/ Attach-ment	
115	12/09/97	Schaible, R., IDEM	Boice, R., U.S. EPA	Letter re: IDEM's Comments on the Draft ESD for the Midco I and Midco II Sites	
116	03/00/98	Environmental Resources Management	U.S. EPA	Investigation and Monitor-ing Plan Addendum 1 Task 19: Soil Sampling to Determine the Extent of Soil Treatment for the Midco I and II Sites	
117	10/19/98	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Review Comments on the Soil Sampling Report for the Midco I and Midco II Sites w/ Attachments	
118	11/00/98	Environmental Resources Management	U.S. EPA	Soil Evaluation Report for the Midco II Site	
119	01/15/99	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Review Comments on the Draft Soil Eval-uation Report for the Midco I Site	

120	03/18/99	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Revised Calculation of Additional Relative Risk Using U.S. EPA Recommended Approach for the Midco II Site	

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121	04/22/99	Boice, R., U.S. EPA	Travers, M., ENVIRON	Letter re: U.S. EPA's Comments on the Draft Soil Evaluation Report for the Midco I Site	
122	05/13/99	Boice, R., U.S. EPA	Travers, M., ENVIRON	Letter Forwarding Maps re: Extent of Soil Treatment Needed to Meet the Draft ESD Requirements for the Midco I and Midco II Sites w/ Attachments	
123	07/19/99	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Calculation of Additional Relative Risk Using U.S. EPA Recommended Approach for Combined Midco I and Midco II Sites	
124	02/02/00	Boice, R., U.S. EPA	File	Conversation Record w/ E. Bates re: Bench-Scale Treatability Study for Solidification/Stabilization of Soils at the Midco I and Midco II Sites	
125	02/04/00	Millano, E., Environmental Resources Management	Boice, R., U.S. EPA	Letter re: Procedure for Evaluating the Principal Threat from the Soils and Proposed Soil Area to be Remediated at the Midco I and Midco II Sites	
126	03/17/00	Patel, O., Roy F. Weston, Inc.	Boice, R., U.S. EPA	Letter re: Procedure for Evaluating the Principal Threat from the Soils and Proposed Soil Area to be Remediated for the Midco I and Midco II Sites	
127	04/07/00	Boice, R., U.S. EPA	Travers, M., ENVIRON	Letter re: U.S. EPA's Comments on Submittal Proposing Procedures for Evaluating Principal Threats for the Midco I and Midco II Sites (UNSIGNED)	
128	04/21/00	Travers, M.,	Boice, R.,	Letter re: Proposed Soil	

		de maximus, inc.	U.S. EPA	Area to be Remediated and Schedule for Submittals for the Midco I and Midco II Sites	

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129	01/22/01	Millano, E., Environmental Resources Management	Boice, R., U.S. EPA	Memorandum re: CompuChem Standard Operating Procedures for Soil Bench-Scale Tests at the Midco I and Midco II Sites	
130	10/00/02	ENVIRON International Corporation/ Environmental Resource Management, Inc.	Midco Remedial Corporation	Midco Conceptual Work Plan: Alternate Remedy	
131	10/02/02	Travers, M., ENVIRON	Boice, R., U.S. EPA	Letter re: Transmittal of Conceptual Work Plan-Alternate Remedy for the Midco I and Midco II Sites	
132	11/13/02	Riddle, S., IDEM	Boice, R., U.S. EPA	Letter re: IDEM's Comments on the Conceptual Work Plan-Alternate Remedy for the Midco I and Midco II Sites	
133	12/20/02	Boice, R., U.S. EPA	Travers, M., ENVIRON	Letter re: U.S. EPA's Comments on the October 2002 Conceptual Work Plan-Alternate Remedy for the Midco I and Midco II Sites (UNSIGNED)	
134	01/28/03	Boice, R., U.S. EPA	Travers, M., ENVIRON	Letter re: U.S. EPA's Approval of (1) Extension of Schedule for Design of the Soil Vapor Extraction/Slurry Wall System at Midco I; (2) Extension of Schedule for Modifications to the Ground Water Pump-and-Treat System, Compliance Testing for MACs for Deep Well Injection and Water Level Measurements for Capture Zone Evaluation for the Midco II Site and (3) Procedures	

149	07/08/04	ENVIRON International Corporation	Midco Remedial Corporation	Final Design/Build Report (Revision 1)- Soil Vapor Extraction/Air Sparging for the Midco II Site
150	08/03/04	Hutchens, R., ENVIRON	Boice, R., U.S. EPA	Letter re: Excavations of Soils at the Midco I and Midco II Sites
151	09/14/04	Boice, R., U.S. EPA	File	Memorandum re: Summary of Procedures and Communications for the Solidification/Stabilization Treatability Study for the Midco I and Midco II Sites

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152	09/28/94	Andrews, S., IDEM	Boice, R., U.S. EPA	Letter re: IDEM's Comments on and Concurrence with the Proposed Explanation of Significant Differences #3 for the Midco II Site	
153	09/30/04	Karl, R., U.S. EPA	Public	Explanation of Significant Differences #3 for the Midco II Site **(PENDING)**	

U.S. ENVIRONMENTAL PROTECTION AGENCY

ADMINISTRATIVE RECORD
FOR
MIDCO II SITE
GARY, LAKE COUNTY, INDIANA

ADMINISTRATIVE RECORD FOR EXPLANATION OF SIGNIFICANT DIFFERENCES #3
SEPTEMBER 27, 2004

SAMPLING DATA

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1	1993	U.S. EPA	File	Folder: Midco Treatability Study CN Data	
2	1993	U.S. EPA	File	Folder: Midco Treatability Study Laboratory and Custody Sheets	
3	1993	U.S. EPA	File	Folder: Midco Treatability Study VOC and VOC Emission Tests	
4	1993	U.S. EPA	File	Folder: Midco Treatability Study Metal Before S/S	
5	1993	U.S. EPA	File	Folder: Midco Treatability Study SOCs Before S/S and Pesticides/PCBs Before and After S/S	
6	1993-1994	U.S. EPA	File	Folder: Midco Treatability Study Metals After S/S	
7	1993-1994	U.S. EPA	File	Folder: Midco Treatability Study Physical Tests and Oil, Grease and Sulfate TOC	
8	1993-1994	U.S. EPA	File	Folder: Midco Treatability Study VOC Data After S/S	
9	1993-1994	U.S. EPA	File	Folder: Midco Treatability Study SOCs After S/S	
10	1994	U.S. EPA	File	Folder: Midco Treatability Study Analysis for pH	
11	1995	U.S. EPA	File	Folder: Reanalyis In-organics for Midco Treatability Study	
12	07/00/95	U.S. EPA	File	Folder: Reanalysis for SVOC SPLP for Midco Treatability Study	
13	1996	U.S. EPA	File	Folder: Validated Data for the Midco I Site	

14	1996	U.S. EPA	File	Folder: Validated Data for the Midco II Site	

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15	1997	U.S. EPA	File	Folder: Final Round Testing Results for the Midco Treatability Study	